

**TECHNICAL REVIEW OF
ASIAPHOS LIMITED
CHENG QIANG YAN AND SHI SUN XI
PHOSPHATE DEPOSITS,
AND
FENGTAI EXPLORATION PROPERTY,
MIANZHU CITY, SICHUAN PROVINCE,
PEOPLE'S REPUBLIC OF CHINA**

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1. EXECUTIVE SUMMARY

Introduction and Terms of Reference

Watts, Griffis and McOuat Limited ("**WGM**") as part of its ongoing advisory services was requested by AsiaPhos Limited ("**AsiaPhos**") to update its March 23, 2017 NI 43-101 report and Mineral Resource estimate. This update describes the work completed since December 31, 2016 including for the Cheng Qiang Yan (Mine 1) and Shi Sun Xi (Mine 2) mining properties and the FengTai exploration permit. The availability of three consecutive years of development and production data as well as more detailed underground sampling has allowed for the conversion of some the Mineral Resources to Mineral Reserves. The report incorporates all exploration and production data received from AsiaPhos to December 31, 2017 and observations of the WGM QPs during the site visit in November 2017. The effective date of the Mineral Resource estimate is December 31, 2017.

AsiaPhos was listed October 7, 2013, on the Catalist board of the Singapore Exchange Securities Trading Limited ("**SGX-ST**"), (trading Symbol 5WV). The company has two operating properties, Cheng Qiang Yan, (Mine 1) and Shi Sun Xi (Mine 2) held by Sichuan Mianzhu Norwest Phosphate Chemical Co. Ltd ("**Mianzhu Norwest**"), a wholly owned subsidiary of AsiaPhos.

During 2015 AsiaPhos also completed the acquisition of a 55% equity interest in 德阳市峰泰矿业有限责任公司 (Deyang FengTai Mining Co., Ltd. ("**FengTai**")) which holds the FengTai exploration license located approximately 500 metres northwest of Cheng Qiang Yan, (Mine 1).

All the properties are located in Sichuan Province, People's Republic of China ("PRC"). Mianzhu Norwest has been restoring its operations following the May 12, 2008 Wenchuan Earthquake. The report updates the current exploration, development, mining and processing operations and improvements to the access roads, as part of the continuous reporting obligations of AsiaPhos.

This independent technical report has been prepared according to the reporting standards of the National Instrument 43-101 Standards of Disclosure for Mineral Projects, including Companion Policy 43-101, as promulgated by the Canadian Securities Administrators ("NI 43-101") for Reporting of Exploration Results, Mineral Resources and Ore Reserves and in compliance with the requirements of the Catalist Board of the Singapore Exchange Securities Trading Limited ("**SGX-ST**") as specified by Practice Note 4C, Disclosure Requirements for Mineral, Oil and Gas Companies.

The effective date of this Technical Report is December 31, 2017 and this Technical Report is dated March 13, 2018. WGM confirms to the best of their knowledge, that other than the official notice of Non-renewal of the Mining permit for Mine 1 (which is noted in the

appropriate sections), there is no new material information that has arisen between the effective date and the date of the Technical Report which would be required to be included in the Technical Report for completeness.

Don Hains, WGM Senior Industrial Minerals Specialist, and Jack Beichen Yue, WGM Associate Mining Engineer visited the company's offices at Mianzhu city during November 8-9, and 7-12, 2017 respectively and met with mine management, engineering and geological staff and conducted a review of mine and exploration data collection and reporting procedures. The mining and exploration permit areas were not visited as the mining operations were suspended at the time.

Operations at both Mine 1 and Mine 2 were suspended in early June 2017. Subsequently the company received water and environmental notices which required the company amongst other things to seek prior approval before resuming mining in Shi Sun Xi. Due to work stoppages or closures orders for many of the mines in the area the haulage roads which were damaged during the rainy season were not repaired. The company was thus unable to comply with the deadline for rehabilitation and also resuming mining in Chengqiangyan, due to the road closures. Continuous efforts to get approval to restart have been unsuccessful to date.

WGM QPs toured the processing plant and new offices, discussed the implementation of enhanced development and mining data collection protocols with Mr. Luo Guangming for both Cheng Qiang Yan (Mine #1) and Shi Sun Xi (Mine #2) and were updated on the progress of the Mian-Mao Highway (the Haulage way). Both Mr. Wang Xuebo, General Manager, and Mr. Luo Guangming, Mine General Manager assisted at the meetings.

The mining operations were previously visited in October 2015 by Jack Yue, P.Eng, WGM Associate Mining Engineer, who visited new wells (adits) #1 at Mine 1 and 1709 Level at Mine 2. WGM Senior Industrial Minerals Specialist, Don Hains, P.Geo., visited the site on April 22 and 23, 2014 accessing the Chen Qiang Yan mine through Adit #1 (1950 level) and the Shi Sun Xi mine through the adit at the 1709 level. Both inspected the project advances and held extensive discussions with mine management and operational personnel at that time.

WGM has relied on documentation and on information from Mr. Luo and Mr. Wang respecting the property which it believes to be representative. Mr. Hains, also held extensive discussions with management including, Mr. Zhang Yuanting of AsiaPhos and Mr. Luo Guangming, Mine Manager and Mr. Meng Shenghong, Assistant Mine Manager.

The Qualified Persons and Joe Hinzer as well as other partners, directors and substantial shareholders of WGM and their associates are independent of AsiaPhos Limited, its directors and substantial shareholders. The Qualified Persons and Joe Hinzer as well as other partners, directors and substantial shareholders of WGM and their associates do not have any interest, direct or indirect, in AsiaPhos Limited, its subsidiaries or associated companies and will not

receive benefits other than remuneration paid to the firm in connection with the qualified person's report. Remuneration paid to the Qualified Persons or WGM in connection with this report is not dependent on the findings of this report.

This WGM report includes personal observations and data collected during the due diligence visit November 7 to 12, 2017 by the authors as well as data provided by AsiaPhos including production statistics and product sales data for the fiscal year ending December 31, 2017.

WGM incorporated information from its previously published NI 43-101 compliant Technical Reports entitled:

- *“Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People's Republic of China”* dated March 17, 2017, by Donald H. Hains, P.Geo., Senior Associate Industrial Mineral Specialist, and Jack Beichen Yue, P.Eng., Associate Mining Engineer.
- *“Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People's Republic of China”* dated March 9, 2016, by Donald H. Hains, P.Geo., Senior Associate Industrial Mineral Specialist, and Jack Beichen Yue, P.Eng., Associate Mining Engineer.
- *An Updated Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, Mianzhu City, Sichuan Province, People's Republic of China”* dated November 21, 2014 by Donald H. Hains, P.Geo. Senior Associate Industrial Mineral Specialist.
- *“An Updated Technical Review of the Cheng Qiang Yan Phosphate Deposit and Shi Sun Xi Phosphate Deposit, Mianzhu City, Sichuan Province, People's Republic of China for AsiaPhos Limited”* dated March 28, 2014, by Donald H. Hains, P.Geo. Senior Associate Industrial Mineral Specialist, Jack Beichen Yue, P.Eng., Associate Mining Engineer, and William Glover, P.Eng., Senior Associate Mining Engineer.

Reliance on Other Experts

WGM has also relied on the draft ore reconciliation report for Mine 1 entitled “Sichuan Mianzhu Huafeng Phosphorus Chemical Company Ltd., Cheng Qiang Yan Phosphate Rock, Mine Reserve Annual report 2017 dated December 20, 2017 and prepared by the Geological and Mineral exploration and Development Bureau of Sichuan Province for production data and resource and reserve reconciliation data related to Mine 1.

WGM has also relied on information translated from the previous draft Chinese Feasibility Study dated July 26, 2016 in support of increasing production to 300,000 tonnes per annum prepared by the company and Sichuan Science and Technology Group limited liability company as well as earlier reports from May 2014, August 2014 and October 2015 being exploration reports reportedly prepared by Sichuan Province Geological Exploration and Development Bureau Geochemical Exploration Brigade as well as preliminary 2016

exploration data provided by the Deyang Geochemical team and other production information provided by Mianzhu Norwest management. The information provided to WGM appears consistent with our personal observations and WGM believe these data to be representative.

WGM has also relied on information presented in the AsiaPhos Offer Document dated September 25, 2013 and subsequent news releases regarding the status of legal title, property agreements, corporate structure, taxes, and information on environmental compliance are reportedly compliant with local regulatory requirements. WGM has not independently researched property title or mineral rights for the exploration permits and Mines under study, and expresses no opinion as to the current title and ownership status of the Mianzhu Norwest Mines and Plant nor related permitting and compliance issues.

Property Description and Location

Mianzhu Norwest's Mines and exploration property are located in the district of Mianzhu City and come under the jurisdiction of Qing Ping Town, Mianzhu City, Sichuan Province, PRC. The elevations of the properties range from 3,200 m to about 1,380 m.

The company understands that the government plans to extend some of the nearby nature reserves and that although no formal boundary confirmations have been received to date it is possible that the new boundaries of the nature reserve may encompass some or all of the company's properties. Each of the properties, Cheng Qiang Yan, Shi Sun Xi, and FengTai, is defined by existing mining and/or exploration permits with surveyed coordinates. The approximate geographic locations of the permit centre points are:

Cheng Qiang Yan	Shi Sun Xi	FengTai
N31°36'14.00"	N 31°38'37.00"	N 31°38'00.00"
E 104°00'14.00"	E 104°04'43.00"	E 103°59'30.00"

The AsiaPhos mining property holdings are as follows:

Asset name / Country	AsiaPhos's Interest (%)	Development Status	Licence Expiry Date	Licence Area	Type of Mineral, Oil or Gas Deposit	Remarks
Exploration Area						
Cheng Qiang Yan / PRC	100	Development	9 April 2018	1.54 km ²	Phosphate	Exploration rights
Shi Sun Xi / PRC	100	Development	16 June 2018	1.28 km ²	Phosphate	Exploration rights
FengTai	55	Exploration	12 December 2017	12.43 km ²	Barite (Phosphate)	Application for renewal submitted
Mining Area						
Cheng Qiang Yan / PRC	100	Development	28 February 2018	1.6491 km ²	Phosphate	Mining rights
Shi Sun Xi / PRC	100	Development	9 January 2020	2.02 km ²	Phosphate	Mining rights

* Application for renewal not approved. .

Mianzhu Norwest has 100% ownership of the property rights for Mines 1 and 2. Pursuant to the restructuring arrangement dated 6 July 2015, and receipt of stock exchange approval for related items 27 July 2015, AsiaPhos now has 55% ownership of the FengTai exploration property.

Further to the press releases by AsiaPhos on February 9, 2018 reporting the Non-renewal of the mining permit for Mine 1 because it is an area designated for Panda Reserve, and November 24, 2017 regarding request for signed undertaking to withdraw from Shi Sun Xi and Fengtai. As of the date of this report, no formal decisions have been received by AsiaPhos regarding FengTai and Mine 2.

At the time of the most recent visit WGM understood that Mianzhu Norwest was in compliance with all applicable local regulations. These include purchase fees for the lands for the processing facilities, exploration and mining licence renewal and application fees and environmental and closure (abandonment) costs. The company has also complied with and obtained the required local Mine safety permit valid until 2018.

As part of its application for the conversion of the Mine 1 exploration permit to a mining permit and increased production the feasibility study prepared by "四川省有色科技集团有限责任公司" (Sichuan Non-Ferrous Technology), also included an environmental assessment report. In compliance with the draft report recommendations AsiaPhos had commenced additional site works to manage and monitor waste rock and to upgrade the current surface drainage systems in preparation for increased mining throughput. Heavier than normal rains in 2017 prevented road access to the site since June 2017. Subsequent remedial water and environmental work orders by the government, requires an approval before mining can restart. Road access however remains restricted and has delayed compliance.

The company also provides monetary reimbursement for a timberland compensation and forest recovery fund bi-yearly and has set aside provisions for rehabilitation and reforestation upon mine closure and has installed waste water treatment facilities at the mine sites.

Because of the steep terrain and recorded seismic history along with ongoing tectonic activity this area is also prone to landslides and earthquakes.

The steep terrain also leads to periodic access interruptions due to inclement or hazardous weather conditions which can cause flooding, mudslides and landslides. Therefore, in the winter the site operations are generally suspended from late December to mid-March. Inclement weather at other times may delay access to the property if roads become washed out due to heavy rains.

The company has budgeted for the improvement and maintenance of access roads (in conjunction with neighbouring operations).

Access Climate Local Resources and Infrastructure and Physiography

The two mines and exploration permit which are within an approximately 8 km-9 km local radius and are located about 45 km northwest (approximate straight-line distance at 330°) of downtown Mianzhu City. They are approximately 40 km by road from Mianzhu Norwest's new downstream processing facility in the Gongxing industrial zone, near the start of the Mian Yuan River canyon that leads to the properties.

Practically the entire length of the road from Mianzhu Norwest's Plant site to Mianzhu Norwest's Mines, has now been reconstructed, to repair the damages caused by the earthquake and strong aftershocks. The new highway includes tunnels and bridges and is built at a higher elevation to avoid flooding damage. Construction has progressed well and has now advanced past Qing Ping Town and the current mine access roads. Based on description provided by Mine Manager Mr. Luo, the highway section from Hanwang Town to Qing Ping Town is fully in use as of end of 2016, and the section from Qing Ping Town to both mines is under minimum maintenance to allow normal access without restoring it to original designed condition.

The road north of Qing Ping Town and the last 3 km to access the Mines is currently being upgraded and maintained by the three companies operating the mines in the area.

The climate is a medium alpine humid/cold climate. The annual precipitation is about 1,050 mm. The months from July to September are considered the rainy season (59% to 84% of annual average), and from November to February is the snow and frost season. The maximum recorded 24-hour rainfall event is about 255 mm. The highest temperature is 36°C (July) and the lowest temperature is -10°C (January).

The entire area of Mianzhu City has been reconstructed to repair damages caused by the Wenchuan Earthquake. Towns and villages have been relocated and entire industries have also been relocated. The Mianzhu Norwest processing facility was relocated, to the new Gongxing industrial zone approximately 3 km to the northeast.

The topography is extremely rugged with steep mountains trending northeast with some vegetation cover of the valleys/canyons. The terrain is defined as steeply sloping with multiple scree (loose rock) slopes and inherent instability from slopes close to failure. The entire area is too steep to support any substantial farming or animal husbandry industries. There are however, some small areas between Qing Ping Town and the Gongxing Industrial zone that appear to support small familial gardening/farming.

The chief employment in the area between new Gongxing Industrial zone and Mianzhu Norwest's Mines is centered on state-run and private phosphate mining as well as a state-supported/directed forestry industry.

History

The discovery of Phosphorite rocks in this area dates back to 1968 when it was first reported by the #101 Geology Team of the Sichuan Bureau of Geology. Subsequent additional and more detailed surveys were reported from 1970, and 1990-1994.

Mining was first reported at Shi Sun Xi, in 1992 but was reportedly abandoned by 2000 due to low grades. Subsequent mining attempts in 2001 and 2002 from two adits at 1,841 and 1,872 m elevation were also abandoned because mineralization was not encountered where expected.

Mining at Cheng Qiang Yan was started in 1994 by the Sichuan Mianzhu School-Run Enterprise Group Company and has been in operation more or less continuously ever since.

Mianzhu Norwest acquired the mining operations in 2002 and carried out limited mining operations up until the time of the 2008 Wenchuan Earthquake. During this period the Sichuan Institute of Chemical Engineering and Geological Exploration prepared a Mineral Reserve estimate to the PRC standard and subsequently the Coal Design and Research Institute of Sichuan province was engaged to prepare a preliminary design to increase the capacity at Shi Sun Xi to 200 kt/a (which remains the current allowed capacity).

Local exploration at the FengTai property before it was acquired by AsiaPhos was conducted between 2008 and 2013 on behalf of the owner in search of Barite by the Hydrologic Engineering Brigade of Sichuan Metallurgic Geology Bureau which included 34.5 km of geological mapping, 3,266 m of trenching and analyses of 170 samples.

The company has been working on rehabilitating the operations at Cheng Qiang Yan and Shi Sun Xi since 2009. Following a recent restructuring exercise completed in 2013, AsiaPhos Limited became the ultimate holding company of Mianzhu Norwest. In July 2015 the acquisition of the FengTai property was completed and exploration for phosphate has commenced.

Geological Setting and Mineralization

The outcrops in the area of Mianzhu Norwest's Mines, Cheng Qiang Yan and Shi Sun Xi, and FengTai exploration property include Upper Sinian strata, Upper Devonian strata, Lower Carboniferous strata, Lower Permian strata and a small amount of Quaternary system. In general, the geologic structures strike NE to SW and dip to North and Northwest at 42°-58°.

This region is located in the middle part of the discordogenic faults at Longmen Shan Thrust Belt and earthquakes frequently occur with some in the strong to severe categories. The Longmen Shan area marks the (rapid) transition from thick crust (60 km+) beneath the Tibetan Plateau (to the west) to continental crust with normal thickness (around 40 km) beneath the Sichuan Basin. This area is also the boundary point between the Caledonian-age folding (Silurian Period) and Songpan-Ganzi geosynclines fold belt of Indosinian orogeny of the early Mesozoic Era (Late Triassic Period) and has been in the process of deformation for at least the last 600 million years.

The stratigraphic records for the two mines are very similar. Local geological brigades are unsure as to the exact age of the phosphorite bed. Although the geological age for the phosphorite bed on the two properties is currently judged to be of Upper Devonian age, historically the bed has also been assigned to the Lower Cambrian and/or Upper Sinian (Pre-Cambrian) ages. The deposit type is known as the “Shi Fang” type. The down plunge extension of the phosphorite bed from the Cheng Qiang Yan property is expected to extend onto the FengTai property as well, although the local surface stratigraphy especially to the west is more complex and less well mapped.

There was a depositional hiatus from the Lower Cambrian to the Devonian Period at which time this phosphorite bed, in preference to others in the area, was severely weathered which created some internal structural changes and enrichment in P_2O_5 content. The internal structure changes and increases in P_2O_5 content are documentable. WGM questions whether this bed should be assigned to the Devonian Period or whether it should be more correctly assigned to the Lower Cambrian.

It is believed that the main phosphorite bed currently being mined at both Mianzhu Norwest’s Cheng Qiang Yan and Shi Sun Xi mines are stratigraphically equivalent. Faulting appears to have repeated the unit on the Cheng Qiang Yan property, this however needs to be confirmed by more detailed geological and structural studies.

Upper Devonian System Lower Shawozi Group (D_3S^1) Contains the Phosphorite Bed.

This unit is composed of the grey or dark carbon hydromica claystone, phosphatic clay, siliceous phosphorite and phosphorite; composed of carbon hydromica claystone, phosphatic kaolinite claystone, svanbergite and brecciated phosphorite. Where the claystone is exposed at the surface, there is a risk of serious weathering. In addition, the claystone is vulnerable to be argillized; while svanbergite (strontium aluminum phosphate sulphate hydroxide) and phosphorite, on the other hand, is stable in thickness, hard in texture and good in stability.

Only a detailed description of the phosphorite bed at Shi Sun Xi as described in earlier Chinese reports is presented here and WGM believes it applies equally to Cheng Qiang Yan. The thickness of the phosphorite bed ranges from 1.1 to 13.8 m with an average thickness of 7.4 m. The P_2O_5 content of the bed ranges from 17.8% to 32.2% with an average of

29.6% P₂O₅. The strike of the phosphorite bed is generally E-W and the dip of the bed is about 30° to 40° in a northerly direction. The contact interface of the phosphorite and the bounding wall rock is clear and abrupt, both at the hanging wall and the footwall. This bed is projected, but has not yet been verified to be present on the FengTai property.

The phosphorite bed has a clear lithological zonation. From the bottom to top there is brecciated phosphorite, dense phosphorite, lutaceous phosphorite, svanbergite, siliceous phosphorite, and phosphatic claystone.

The phosphorite bed often leads to vertical zoning that is not complete, or is partially missing, due to the constraints of variability of the karst base (floor material) at the top of the underlying Deng Ying Group of strata.

The mineral combination mainly includes apatite, collophanite, svanbergite, kaolinite and hydro-mica among other minerals. However, from top to bottom the content of apatite and collophanite decreases in the phosphorite bed, while that of kaolinite and hydro-mica increases. The svanbergite is generally found in the central portion of the property.

The phosphorite bed is generally featured, by positive corpuscle-order gradation, a grain-size change from coarse to fine going from the bottom to the top except for the mixed order and sizes of brecciated phosphorite at the bottom of the sequence.

Physical conformation of the phosphorite bed is strictly controlled by the erosional surface of karstic topography at the base of the bed. Usually the upper contact is regular and even while the lower contact is irregular.

Typical of the "Shi Fang Type" of phosphorite deposit, the phosphorite bed is located in the space formed by the erosion process as a point of accumulation and the bed has transverse thickness variations. The erosional aspects of deposition has a certain character of its own as the accumulation of phosphorite develops along with erosion, and the phosphorite is accumulated in the lower part of the erosional topography as a bed. The phosphorite bed is derived from the weathered and reworked material from the Lower Cambrian Meishucun Formation.

The Cheng Qiang Yan property is situated in between two major, and regional, fault systems, faults F1 and F2. Most of the faults specifically on the property are reverse faults, typical of overthrust and compressional terranes. A strike slip fault near the western boundary of the property dips toward the west at 55°. This fault appears to have up faulted the phosphorite bed resulting in the second appearance of the phosphorite bed at a higher elevation.

The faults on the property generally strike NE to SW with a monoclinical structure and dip toward NW to N at 43 to 58°.

The Shi Sun Xi property contains only one described fault which strikes from SW to NE and dips in an unknown direction at an unknown angle. The fault influences the phosphorite stratum under the exploration license to the east of the mining permit.

The FengTai property is located within the east branch of the Maowen Fault, a north branch of Jiuding Mountain Fault. The fault follows the south side of the Moutuo-Shilipu NE striking anticlinorium and is considered a compressive twist fault dissecting the Sinian and Permian formations, striking $45^{\circ}\sim 50^{\circ}$ and dipping NW-NNW at an angle range of $50^{\circ}\sim 80^{\circ}$. The Sinian dolostone shows a relative high degree of fragmentation. This major fault and structure and several sub parallel minor faults dominate the area.

According to GB18306-2001 “China’s earthquake motion peak acceleration division map” (PRC “National Standard Amendment No.1”, June 11th, 2008), the earthquake motion peak acceleration in this region is 0.20 g, the basic earthquake intensity is Mercalli VIII, the earthquake response spectrum eigenperiod is 0.35. According to the Sichuan Province tectonic system and earthquake distribution maps in 1980, Mianzhu County annals and the quartz mine ESR age results explored in the fault zone of this region confirm that this region is located in a later structured active belt, where minor shocks have frequently occurred during geologic times. It was recorded that there were more than 10 earthquakes that affected this region; such as on March 22, 1983, when an earthquake occurred in Qing Ping Town in Mianzhu City, the epicentre was located at $104^{\circ}17'E$ longitude and $31^{\circ}34'N$ latitude with a magnitude of 4.2. Fortunately it caused little damage due to its mild intensity. However, Qing Ping Town became a severely damaged area after the Wenchuan Earthquake. Most of the buildings were destroyed and other damage was devastating. Based on the recorded seismic history in the area along with the geologic features and structures, it is expected that earthquakes will continue in the future. The intensity of major earthquakes could again reach a Mercalli intensity VIII (equivalent to Richter scale between 6 and 7, and mining construction as well as other projects should be planned and designed accordingly.

Although surface facilities were extensively damaged, the underground workings of the Mianzhu Norwest mine were minimally affected by the earthquake. This has been confirmed by recent exploration, development and mining activities since that time.

The phosphorite mineral composition consists chiefly of fluoroapatite and collophanite (70 to 80%) and of clay minerals (3-10%) with an accompanying 1 to 10% quartz and 1-10% zirlite (an amorphous aluminum-hydrate encrustation) as well as small amounts of pyrite, fragments of carbonate, ferric oxide, and chlorite.

The key element of commercial interest in the phosphorite mineral is phosphorus (P), which occurs in the natural oxidized form as P_2O_5 . According to 2017 production statistics, the combined average P_2O_5 extracted from the two mines was 30.93 percent.

The Coal Design & Research Institute of Sichuan Province determined that the major gangue mineralization in the phosphorite includes MgO, Fe₂O₃, Al₂O₃, and CO₂. These gangue minerals will have no impact on the P₂O₅ quality or production. This is generally consistent with WGM's recent analyses and current analytical work reported by the bureau.

The barite mineralization zone striking NE and dipping northwest occurs in the "graniphyric" dolostone of the Upper Sinian Dengying Formation, with a bedding consistent with the strata. The trench TC03 indicated that the mineralized zone is 140 m long and 15 m wide, and offered some samples which returned assay results of 8%~12% BaSO₄.

Phosphate has not been discovered on surface to date. However based on the Phosphate beds at Cheng Qiang Yan and the adjacent Longman properties to the south it is expected that the phosphate bed underlies the property as well.

Deposit Type

The primary phosphorite bed of economic interest is of sedimentary origin. While there is some disagreement between various historical geological reports as to the exact age and nature of the two deposits, the main feature being the phosphorite bed is easily identifiable and traceable at both sites.

The geology reports by local geological bureaus for the two deposits differ as to the geologic age of the phosphorite bed with the bed at Shi Sun Xi being of Devonian age and the Cheng Qiang Yan being Upper Pre Cambrian. WGM believes that both are more likely of Lower Cambrian age and equivalent to the Meishucun Formation similar to the deposits on the east flank of the very large anticline that forms the basis of most of Mianzhu area's phosphorite production.

WGM has no doubts that the roof material for the Shi Sun Xi bed is Devonian and there is a significant unconformity between the two strata just as there is an unconformity between the phosphorite bed and the underlying Upper Sinian strata identified as the Deng Ying Formation.

Because of the "Devonian" age assignment for the phosphorite bed at Shi Sun Xi, this type of "Devonian phosphorite deposit" is designated as the "Shi Fang Type" in Sichuan Province. During the depositional hiatus and erosional events that occurred between the Middle Cambrian and Devonian ages the phosphorite bed was severely weathered which increased the quality of the bed significantly compared to the Meishucun Formation. This is a natural "beneficiation" process. During the initial depositional events during the sea on-lap in the Devonian age, the "Shi Fang Type" beds were displaced somewhat and incurred internal structural changes to the bed which was subsequently covered with mid- to upper shelf Devonian marine sediments.

Exploration

Activities during 2017 at the Cheng Qiang Yan property included pre-development stope preparation and remedial work for waste rock management and drainage in preparation for increased production (subject to the company's application to convert the current exploration permit to a mining permit and to increase production to 300,000 tpa).

Exploration focussed on underground development which consisted of a total of (2,048.4 m) of which a total of (637.5 m) have been designated as exploration related by the operators.

For the Shi Sun Xi mining permit and exploration permit work in 2017 included drilling of 11 underground ore definition holes as well as underground development work. This drilling as well as the two drill holes drilled in 2016 which totalled 1,156.2 m are described in more detail in the following section of the report, (section 10). Underground development work totalled 4,298.9 m of which 4,298.9 m were designated as exploration related. The company has continued to update its underground surveying and geological mapping and all AutoCAD drawings as well as upgrading its database.

No work was undertaken on the FengTai property, as access via surface routes remains blocked since the 2008 earthquake. The company has submitted an application for renewal of the exploration permit which expired 12 December 2017. As at the date of this report the renewal had not been granted.

The company has now completed the upgrading of both the Cheng Qiang Yan and Shi Sun Xi mine workings to the Xian 1980 co-ordinate system.. Underground geological mapping is tied to survey points and allows for the updating of previous survey data and to update the distribution of the mineralization both within the current mining permit levels and in the exploration permit area below the current mining areas. The updated section plans reviewed by WGM in 2017 for both Cheng Qiang Yan and Shi Sun Xi, were extremely detailed and presented both the geology as well as the orientation (dip and strike) of the phosphorite bed and any other pertinent structural details encountered. Underground sample locations and survey points as well as rock descriptions symbols are recorded on adit long section plots. All information is entered into an AutoCAD drawing file with appropriate orientation details.

The company in 2017 continued to improve its quality control and data management.

For local regulatory reporting requirements, including mineral resource updates, the required geological surveys, drilling and underground sampling as well as testing is carried out by and under the supervision of the geological bureau. WGM has been provided with data for the work completed in 2017, while it shows improvement from prior years the data remains incomplete, and only some of the data was incorporated.

As part of the 2016 Chinese feasibility study noted previously, mineral reserves, in conformity with Chinese National Standards have been outlined for the upper phosphate bed on the Cheng Qiang Yan property. While this area has not been visited nor have the mineral reserves been reviewed by WGM, their inclusion as part of the Chinese feasibility study further confirms the existence and extent of the upper mineralized zone on the Cheng Qiang Yan property and supports their potential projection to extend onto the FengTai property approximately 800 m to the northwest.

The eleven recent drill holes at Shi Sun Xi confirmed the continuity of the mineralization down dip and the estimated average grade of the zone is consistent with sample results from nearby workings. Preliminary exploration results available to WGM to date indicate the mineralization underlying the eastern portion of the exploration permit to be much more sporadic.

Drilling

For mineral resource estimation purposes WGM has treated surface trench samples, and underground sampling as equivalent to drill hole samples. Data from the eleven (11) new underground drill holes (see Tables 10 and 11) total 422 m. The company started in 2017 to use underground drilling as part of its stope pre-development work in lieu of typical underground channel sampling of test development drifts at the Shi Sun Xi property. The new drilling was carried out by mine staff using equipment acquired by the company. Core logging and sampling as well as hole orientation surveys were completed by mine staff. The holes were completed between February and May 2017.

There are no changes to the current Cheng Qiang Yan geological dataset which contains records for thirteen trenches referenced in either reports or on drawings reviewed by WGM prior to 2013 and an additional 18 underground samples and six trenches reported prior to 2016.

WGM has included the data from drilling on the Shi Sun Xi from the 2017 exploration and has updated the Mineral Resource estimate accordingly. WGM has maintained the current dataset for Cheng Qiang Yan.

Reference samples collected by WGM in November 2013 from both the Mine sites generally confirmed the grade and density of the reported mineralization.

The data from underground sampling completed in 2016 remains sporadic. Summary assay data and drawings showing the location within the adits of 13 of the sites sampled have been provided to WGM. While current information and record keeping has improved not all of the exact location data, and assay results of individual samples for exploration and development work completed prior to 2017 is available.

Sample Preparation Analyses and Security

PRC has well established standards for geological exploration and reporting requirements. The exploration, sampling and analyses procedures for Phosphate are contained in a number of standards which must be followed in order get approval to advance any projects. The detailed procedures have been presented in the previous WGM report entitled “*A Technical Review of the Cheng Qiang Yan Phosphate Deposit and Shi Sun Xi Phosphate Deposit, Mianzhu City, Sichuan Province, People’s Republic of China for AsiaPhos Private Limited*” dated February 18, 2013, by Donald H. Hains, P.Geo., G. Ross MacFarlane, P.Eng.

WGM understands that the program completed on December 23, 2013 as well as the subsequent data by the Sichuan Province Geological Exploration and Development Bureau Geochemical Exploration Brigade and other brigades was conducted according to the required PRC regulation. These procedures are considered by WGM to be acceptable.

Analyses for the 2013/2014 program for Cheng Qiang Yan (Mine 1) included whole rock analyses for 10 samples and trace elements for 7 samples, however specific assay techniques were not specified. Also 14 duplicate samples and 7 verification (check) samples were also analysed as part of the sample verification program. The number of duplicate and check samples is in accordance with good QA/QC procedures. No information was provided on the number of certified reference standards or blanks incorporated in the main sample assay program, or if standards and blanks were also placed in the duplicate and check assay sample batches.

The results of the duplicate and check assays show a very high degree of correlation, with correlation coefficient values (R^2) in excess of 99% for P_2O_5 , SrO and acid insoluble.

The bureau also analysed 10 water samples in 2014 to determine the nature of the runoff from the mines. WGM understand the sampling was required to meet Chinese regulations for discharge into local drainages. WGM understands regulated analytical procedures were applied for the samples and requisite standards were achieved.

Data Verification

WGM visited the plant sites and reviewed the road status in November 2017. Access to the mines was not possible during this visit as roads still remained impassable as a result of heavier than normal rains. Previously in July 2016, WGM met with mine engineering and geological staff and management to review production statistics for Q1 and Q2 2016, and to review existing record keeping and QA/QC procedures.

WGM had previously visited both the Cheng Qiang Yan and Shi Sun Xi sites in October 2015 to review the underground mining operations, and no new samples were collected. At that time, WGM also visited the processing facilities and noted that the new office building was now complete and staff had just started moving in.

WGM interviewed at length the mine staff to document the details of the new underground pre-development drilling. The current underground drill used recovers only core cuttings. Company geological staff prepares a drill log of the cuttings as drilling proceeds and collect cuttings for visual inspection. Orientation readings are collected at the hole collar. The samples are analysed at the internal company laboratory, which is located near to the AsiaPhos plant. All of the cuttings from mineralized sections were sent for analysis. While WGM was unable to visit the mines to verify the location of the drill holes or to see any of the cuttings, the QP has no reason to believe the results are not representative.

Previously in 2013, WGM collected six samples, 3 from Mine 1 and 3 from Mine 2, during its November 2013 site visit. Sample analyses confirm the overall mining grade, rock density and range of oxide minerals as well as accessory minerals content. These samples were analysed at SGS Tianjin Mineral Laboratory, Tianjin, PRC using standard analytical techniques for phosphate ores. The results of the analyses confirmed the general tenor of the grade and specific gravity of the ore as reported in the Chinese geological reports.

During previous site visits in 2013, 2014 and 2015, WGM personnel observed the various steps of this fully integrated Phosphate operation from mining through final processing. WGM reviewed development and mining practises at Mines 1 and 2 as well as mine access roads, mine site fixed facilities and discussed the operation of the new process plant. Details of these underground visits were presented in WGM's previous March 2016 technical report. WGM again toured the processing plant in July 2016, noting that the new office building had now also been completed. The mining sites were not visited as operations were suspended as usual, during the mid-summer rainy season.

The October 2015 site visit included New Well #1 at Mine 1 and 1709 Level at Mine 2. The WGM QP inspected the underground development, transportation system, and operation. The progress on ground control and transportation system is well noted.

WGM was able to confirm in discussion with mine manager Mr. Luo that development and production stoping was underway on 6 levels or wells at Mine 1, normally employing 130 contract miners at this underground operation. At Mine 2, there were 6 levels or wells under development normally employing an additional 130 contract miners for a total of 260 contract miners employed at the two mines. In addition to the contract miners on site there were the company staff, camp maintenance personnel, and contract truckers which reportedly brought the total manpower at the two mines to approximately 280 people, the plant manpower being extra. However, since the end of June 2017 when the mine access road became impassable virtually all personnel have been evacuated from the mine sites.

Mineral Processing and Metallurgical Testing

No direct evidence of previous mineral processing and/or metallurgical testing has been presented for review. A report by the Sichuan Institute of Chemical Engineering and Geological Exploration indicated that “the “Shi Fang Type” mineralization has been discovered and processed for over 40 years. The processing industry has considerable processing experience on handling this type of mineralization, and based on these experiences, the product from this site can be directly used as chemical reagents or fertilizer”.

Mianzhu Norwest produced, from 2002 until the Wenchuan Earthquake, a total of approximately 379,000 tonnes of phosphate rock that were fed to the electric furnace operations at Hanwang Town Mianzhu City to produce elemental phosphorous (P_4). There was no evidence that elements like arsenic had been tracked in the operation from the phosphate rock, waste products and possible releases to the environment which would be normal and required practice in western operations. Two WGM composite samples collected in November 2013 returned arsenic (As) results of 16 and 30 ppm respectively.

This operating history demonstrates that end products (P_4 and related) can be produced economically and competitively with this type of operation. Based on records recovered after the earthquake, production averaged about 29.6% P_2O_5 and 2.9% Fe_2O_3 (dry). The average moisture content of each of these samples was about 4.6% H_2O . This operating history demonstrated that end products (P_4 and related) can be produced economically and competitively with this type of operation.

Since the earthquake the processing plants were re-located to a new industrial park and the company has installed their new modern facilities. Since access to Cheng Qiang Yan was re-established in 2010 until the end of 2017 the two mines have produced approximately **1,182,270** dry metric tonnes (“dmt”) of ore.

Mineral Resources

The two phosphorite deposits controlled by Mianzhu Norwest contain, as of December 31, 2017, an estimated Measured and Indicated (“M&I”) Resources of 14.0 million in situ tonnes, at a grade of 29.04% P_2O_5 under mining licenses. A further 7.6 million in situ tonnes of M&I Resources at a grade of 25.19% P_2O_5 are controlled under exploration licenses on the two properties. The Inferred Resources are estimated to total 1.0 million in situ tonnes, at a grade of 29.40% P_2O_5 under the mining licenses and an inferred 3.0 million in situ tonnes are estimated under the exploration licenses at a grade of 24.98% P_2O_5 . These estimates used are compliant with CIM standards. Computer model design criteria included:

- Phosphorite Density – A constant 3.08 tonnes per cubic metre was used for Cheng Qiang Yan and 3.03 tonnes per cubic metre used for Shi Sun Xi; these are the same as for all past studies conducted and are supported by reports and WGM’s recent 2013 sampling

(six samples) showed a specific gravity range from 2.97 to 3.18 g/cm³. The 2014 results from 30 samples tested by the Bureau ranged from 2.88-3.42 g/cm³ with similar averages;

- Minimum Phosphorite Bed Thickness – 0.25 m; estimates by past PRC work use a minimum thickness of 1.6 m; (Thicknesses ranged from 0.67 m to 13.84 m);
- Phosphorite Subcrops – None were used. The geological history for the Shi Fang type deposit dictates that all weathering phenomena were emplaced millions of years ago and no recent activity accounts for changes;
- Phosphorite Analyses – The data which are contained in individual sample analyses contained in the dataset for each property are limited. The past PRC estimates used various grade cutoffs at various times all dictated by Provincial guidelines with such cutoffs not geologically warranted. WGM applied an effective 8% P₂O₅ cutoff basis (resource polygon grades ranged from 17.77% - 35.39%);
- Outside Estimate Boundary – The mining license boundary and the exploration license boundary are used for each property; and,
- Average bed thickness and average P₂O₅ content are weight averaged by tonnes from the various applicable polygons resulting from the estimating process.

The following tables summarize the Mineral Resources for Mianzhu Norwest's mines. The Mineral Resources of each property (asset) for the mining licence area and exploration license area have been combined. Note that the estimates account for the continuity, grades and bed thickness from drill holes and surface trenching as well as information from mine development and production mining which were used in computer models developed for each deposit. Preliminary exploration results for the Shi Sun Xi Property had been reviewed in 2016 but not included in the updated resources as the information was not available. Some negative changes were expected primarily to the inferred mineral resources. While no material changes are expected to affect the measured and indicated mineral resources or mineral reserves from exploration results, the incorporation of 2017 underground drilling in the Shi Sun Xi mineral resource estimate has significantly reduced the indicated and inferred tonnages within the eastern portion of the exploration permit, with a reduced impact on resources within the mining permit.

Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Under NI 43-101 criteria, only Mineral Resources under the M&I classification may be considered for inclusion in any mine planning efforts which are required and to possibly elevate the categorization of that material to Reserve status. The demonstration of economic viability of the Resource and downstream processing must be established before the Mineral Resources can be classed as Reserves. No Inferred Resources may be included in these efforts. This document is the reporting of phosphorite Mineral Resources and Reserves only.

Summary of the Mineral Resources and Reserves for Mianzhu Norwest's Mines

Category	Mineral Type	Gross Attributable to licence		Net Attributable to Issuer Assumed at 100%			Remarks
		Tonnes (millions)	Grade (P ₂ O ₅ %)	Tonnes (millions)	Grade (P ₂ O ₅ %)	Change from previous update ⁸ (%)	
Reserves							
Proven	Phosphorite	0.9	27.73	0.9	27.73	-18	-200k tonnes
Probable	Phosphorite	<u>0.5</u>	<u>27.11</u>	<u>0.5</u>	<u>27.11</u>	<u>0</u>	
Total		1.4	27.50	1.4	27.50	-13	
Resources							
Measured	Phosphorite	16.2	27.51	16.2	27.51	-2	+200k tonnes
Indicated	Phosphorite	<u>5.3</u>	<u>28.22</u>	<u>5.3</u>	<u>28.22</u>	-53	-6M tonnes
Total		21.6	27.69	21.6	27.69	-1	
Inferred*	Phosphorite	4.0	26.09	4.0	26.09	-77	-13.8M tonnes

* refers to the reduction of Inferred resources for the mine 2 exploration permit as a result of exploration results from 2016/2017.

Notes: Mineral Resources and Reserves effective December 31, 2017.

1. WGM Senior Associate Industrial Mineral Specialist, Donald Hains, is the Qualified Person for this Mineral Resource/Reserve estimate.
2. Mineral Resources are estimated at a cutoff value of 8% P₂O₅ (based on a price of US\$60/t P₂O₅), and a minimum phosphorite bed thickness of 0.25 m.
3. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.
5. The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May 10, 2014.
6. S.G. of 3.08 tonnes/m³ and 3.03 tonnes/m³ used for Cheng Qiang Yan and Shi Sun Xi respectively.
7. Indicated amounts may not precisely sum due to rounding.
8. Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.
9. Previous Mineral Resource estimate update was prepared 31, December 2016.
10. The decreased tonnages in the Measured and Indicated categories are attributed to the upgrading of portions of the resources to the Mineral Reserve category, and to a lesser extent, depletion due to ongoing mining. Note that Mineral Reserves are being reported for the first time for these mines, under NI 43-101 Standard.
11. Estimated Mineral Resources reported are in addition to Mineral Reserves.

Mineral Reserves

Based on its review of production records and capital and operation cost from 2013 to 2017 WGM is of the opinion that Mineral Resources in the immediate vicinity of exploration and development drifts currently being mined and included in the AsiaPhos mine plan for the period 2018 through 2020 can be upgraded to reserves. This would include approximately 1.4 million tonnes in total for the two mines.

Conversion of other Mineral Resources to Mineral Reserves is contingent on additional underground exploration, preferably using underground drilling and the completion of a unified database integrating all underground exploration, development and grade control sampling and surface trench and drill data.

As a result of the notice of non-renewal for the Mine 1 permit, WGM has also restated the estimates without the Mine 1 mineral reserves.

Restated summary of the Mineral Resources/Reserves for Mianzhu Norwest Mines (without Mine 1)

Category	Mineral Type	Gross Attributable to licence		Net Attributable to Issuer Assumed at 100%			Remarks
		Tonnes (millions)	Grade (P ₂ O ₅ %)	Tonnes (millions)	Grade (P ₂ O ₅ %)	Change from previous update ⁸ (%)	
Reserves							
Proven	Phosphorite	0.2	27.28	0.2	27.28	-83	-945k tonnes
Probable	Phosphorite	<u>0.5</u>	<u>27.11</u>	<u>0.5</u>	<u>27.11</u>	0	
Total		0.7	27.16	0.7	27.16	-13	
Resources							
Measured	Phosphorite	6.5	29.31	6.5	29.31	-2	-9.5M tonnes
Indicated	Phosphorite	<u>5.3</u>	<u>28.22</u>	<u>5.3</u>	<u>28.22</u>	-53	-6M tonnes
Total		11.9	28.82	11.9	28.82	-1	
Inferred	Phosphorite	4.0	26.09	4.0	26.09	-77	-13.8M tonnes

* refers to the reduction of Inferred resources for the mine 2 exploration permit as a result of exploration results from 2016/2017.

Mineral Resources and Reserves effective February 28, 2018 (assuming exploration permit will not be renewed.).

1. WGM Senior Associate Industrial Mineral Specialist, Donald Hains, is Qualified Person for this Mineral Resource/Reserve estimate.
2. Mineral Resources are estimated at a cutoff value of 8% P₂O₅ (based on a price of US\$60/t P₂O₅), and a minimum phosphorite bed thickness of 0.25 m.
3. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.
5. The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May 10, 2014.
6. S.G. of 3.08 tonnes/m³ and 3.03 tonnes/m³ used for Cheng Qiang Yan and Shi Sun Xi respectively.
7. Indicated amounts may not precisely sum due to rounding.
8. Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.
9. Previous Mineral Resource estimate update was prepared 31, December 2017.
10. The decreased tonnages in the Measured and Indicated categories are attributed to the upgrading of portions of the resources to the Mineral Reserve category, and to a lesser extent, depletion due to ongoing mining. Note that Mineral Reserves are being reported for the first time for these mines, under NI 43-101 Standard.
11. Estimated Mineral Resources reported are in addition to Mineral Reserves.

Mining Method

The company's two Phosphate producing mines are both underground mines comprising relatively higher density, hard host rock. Primary access is by adit from the mountainside at 100 metre vertical intervals and plus 3% grade for water control. These horizontal adits are driven conventionally with handheld drills in the footwall parallel to the steeply dipping ore vein.

A typical stope is 50 metres along strike and 50 metres high. Once a stoping block has been outlined, conventional stull and ladder raises are driven every 50 m along the adit drift to define the lateral extent and gain access to the top of the 50 m high stope. The footwall raises are driven from the adit drift to a captive sub level 50 m above and then the raise is continued up another 50 m to the adit above.

The mining method is conventional shrinkage stoping where uppers are drilled using handheld drills in a horizontal slice from one raise to the raise at the other extent of the 50 m long stope. Due to the steeply dipping ore, gravity allows the broken ore in the stope to

migrate down to the extraction drawpoint below. Swell muck is extracted from drawpoints and the remainder of the ore is left in the stope for a working platform for the stope miners who work off the broken ore in the stope.

Ore is hauled from the drawpoints with tractors to ore passes, which were redesigned from original mine design to allow ore and waste rocks to be collected at a series of loading points at the bottom level of the mine by an electric powered rail system with mine carts to the portal. This haulage system replaced the cable tramway used to haul ore and waste in the air across the valley.

Materials are directly unloaded from the carts into designated areas. Ore is loaded with loaders from chutes into trucks, which are provided and operated by third party trucking contractors. A scale near office facility 1-2 km from the mine is used to weight the trucks before departure to the processing plant.

Recovery Method

Mine ore transported to the Company's processing plant located in the Gongxing industrial zone is dumped in stockpiles, based on origin and analysed in the company assay lab to determine grade and moisture content. Based on the grade of the ore it is either sent to the processing facility or sold as raw ore.

Conveyors feed the ore stock piled in the courtyard, to two stages of rock crushing. Lower grade material is generally sold untreated as crushed rock for local consumption or to the fertilizer industry. The highest quality rock is utilized to meet the capacity of the Mianzhu Norwest Plant.

The phosphate ore, coke and silica are each dried using the thermal energy from the recycled waste flue gas and then stored in appropriate silo's from which they are then conveyed in their appropriate rations into the feed bin for the P4 furnaces.

The mixed ore, coke and silica are then fed into the furnace on a continuous basis as required. The molten material undergoes a reductive reaction releasing the gasses containing phosphor and CO. The gasses then together with dust are directed into four cooling towers where they are sprayed with water with the sublimates settling in the receiving bins at the base of the towers.

The phosphorous sludge from the purification bins is settled in an underground storage pool and then pumped into evaporating pots. The residual sediment is then sent out to a phosphoric acid manufacturing facility.

All the water used in the cooling towers and other processes is collected and stored in a waste water pool, from where it is treated and then recycled. The waste gasses from the cooling

tower, which contain about 80-90% CO are captured and used as energy for the drying of the raw materials and steam boilers after being cleaned and alkali rinsed. The slag is sold for other industrial processes including cement manufacture. The Phosphor iron deposits which line the slag pool are recycled after cooling and extraction.

Production shortfalls from Norwest mining operations can be filled with the purchase of other production in the area and mine production in excess of the required capacity of the Mianzhu Norwest Plant is either stockpiled for future use or will be sold to other phosphate rock processors in the region.

The new processing facility also includes an adjacent area for the production of the food processing chemicals, SHMP and STPP. Relocation of the STPP plant and the related storage and handling facilities immediately west of the new furnace site has been completed and is now operational. At the time of the 2017 site visit, the STPP plant was not operating. It was explained that production of STPP had been suspended due to low prices.

Project Infrastructure

Mianzhu Norwest has substantially completed the agreements with neighbouring mine operations to integrate three surplus tunnels into their handling of mine rock production. The production forecast includes continued incorporation of these tunnels into the mine operations in 2016 to develop an underground passage system at both Mines that connects all levels to allow equipment and personnel to enter and exit the Mines through a well established and protected main portal. These adits are established at lower elevations in areas where there is much reduced risk from further rock slides. The adits are constructed with a loading pocket with adequate capacity to support continuous truck loading in the adit and under the loading pocket.

Cheng Qiang Yan or Mine #1 is the company's flagship mining operation with development and/or stoping in seven adits or wells as of 2016. The seven wells being developed and/or mined at Mine 1 are Wells #1, #3 #4, #8 #15, 2140 and 2380.

Shi Sun Xi or Mine #2 is the newer of the two mines and is mainly under development. As of end of 2017, there were six adits or wells being developed at Mine #2, namely wells at Elevation 1,600 m, 1,655 m, 1,709 m, 1,815 m, 2,050 m and 2,150 m.

Process Plant and Facilities

Construction of its P4 Plant includes the construction of two (2) furnaces at the New Gongxing industrial zone in FY2013 under Phase 1. After some initial technical start up issues with the P4 furnaces AsiaPhos has now improved the operation leading to reduced costs.

Sales of P4 have increased from 3,509 tonnes in 2014 to 10,061 tonnes in 2015, and 9,838 tonnes in 2016, and 15,485 tonnes in 2017.

The company had expended approximately ¥170 million (approximately S\$34 million) to the end of 2016 on the construction of the New Gongxing Facilities.

The company has re-located all the plant facilities from Hanwang to Gongxing in 2013 and upgraded of the STPP Plant and other operating facilities (such as laboratories) and infrastructure for the factories (such as access roads).

Construction of new office building was completed in October 2014 and is now fully occupied.

Access Road

Mianzhu Norwest made a production forecast for their operations starting in 2012 of 40,000 tonnes and gradually building to 420,000 tonnes in 2016. Production in 2017 was limited to only six months due to road access restrictions and subsequent remedial work at Mine 2, which required approval prior to restarting (see news release of November 24, 2017) http://asiaphos.com/pdf/20171124_AsiaPhos-Mining-Operations-Update_SGXNet-Released.pdf

Actual production achieved in 2017 was 186,440 tonnes less than half of the budgeted amount.

Since the extensive flooding in mid-2013, the government has changed its overall strategy on the Mian-Mao Highway. The current road is now under minimum maintenance to allow normal access without restoring it to original designed condition. A new highway, designed at a higher elevation to avoid flooding damage, is now under construction.

Road accessibility will be a critical factor until the construction is completed. Based on the latest new release from local government, dated June 2016, the construction, scheduled for 48 month, commenced in late 2015, and is expected to be complete in 2019.

For the Mian-Mao Highway, the ‘Hanwang to Qingping’ section was completed by October 2016. Further details on the project and completion milestones are available via the ‘512rjc Sichuan Rebuild’ joint Sichuan-HK reconstruction committee: <http://bit.ly/2FwsQm6>

Marketing

China’s Phosphate rock production for 2016 was 138 Million tonnes (large mines only) as reported by the USGS (USGS, 2017), a 15% year over year increase. The increase in production was due to local demand for phosphate rock in downstream processing operations, this despite a downturn in the global markets and resultant weaker than expected export market demand. China remains the largest phosphorous ore producer in the world representing approximately 53% of world phosphate rock production. Phosphate fertilizer

production and consumption within China are expected to remain balanced in the future, with market growth coming from increased exports to developing Asian Markets.

Phosphate rock prices strengthened through 2017 due to strong demand from downstream processors. Prices in 2018 are anticipated to increase only slightly from current levels as rock inventories are high and prices for downstream phosphate chemicals have declined. Producers with the access to both raw materials and markets as well as low cost operations are best placed to profit from the business.

Southwest China's five main provinces (Hubei, Henan, Sichuan, Guizhou and Yunnan) currently account for the majority of China's phosphate ore reserves on both a tonnage basis (76.6%) and on a contained P₂O₅ basis (90.4%). Sichuan Province was the fourth largest producer of phosphate rock in China and demonstrated the third largest growth (based on data reviewed by WGM).

AsiaPhos is actively selling and marketing its current production and has established buyers for its products. Most recently, AsiaPhos announced two framework phosphate rock supply agreements (AsiaPhos News Release dated March 14, 2017). These agreements incorporate a Letter of Intent between AsiaPhos and Mianyang Aostar Phosphorus Chemical Industry Co. Ltd., for the supply of 150,000 tonnes of phosphate rock in FY 2017 (quarters ended March 31, 2017–December 31, 2017), and a framework agreement between AsiaPhos and Sichuan Lomon Phosphorus Chemical Co. Ltd., for the sale by Mianzhu Norwest of 120,000 tonnes of Phosphate rock (>30% P₂O₅ content) to Sichuan Lomon at an indicative price of RMB 355/tonne, and the purchase of 120,000 tonnes of phosphate rock (>25% P₂O₅ content) by Mianzhu Norwest from Sichuan Lomon at an indicative price of RMB 270/tonne.

The company is also actively maintaining its own marketing activities and as such has not found a need to update the former CRU International Limited (“**CRU**”) market review dated 21 June 2013 prepared for AsiaPhos which indicates that their phosphate rock are of relatively higher quality than other phosphate rock mined in the PRC. WGM believes that the general observation by CRU as noted herein remain valid.

An Industrial Minerals (“**Indmin**”) staff release 27, April, 2015 commented on the impending scarcity of high grade phosphate in China which has resulted in the implementation of greater measures to manage the market such as export quotas, tax measures and innovation to support its phosphate industry. Data from CCM (2015) indicate that the average P₂O₅ content of phosphorite rock in China is now just over 17% and only an estimated 1.7 Bn tonnes of high grade reserves (±30% P₂O₅, remains in the country. Operating costs in China show costs ranging from about US\$31/t for 28% ore vs about US\$73/t for 22% ore. AsiaPhos falls near the lower cost end of the scale.

The combined measured and indicated phosphate rock resources for Mine 1 and Mine 2 have an average P₂O₅ content of 29.62%. In addition, CRU noted in their 2013 report that phosphate rock with low Cadmium (Cd) content of less than 5 ppm Cd would generate a premium. Independent samples by WGM show the cadmium content of 2 composite samples to be 2.12 and 2.99 ppm respectively and more recent 2014 analyses of 10 samples by the geological bureau returned values in the range of 1.19-4.4 ppm.

After rapid price increases for phosphate ore from 2010 through 2013, prices declined in 2014 and have remained relatively constant through 2015 and 2016.

The Mianzhu Norwest Operations will yield phosphate rocks with relatively high P₂O₅ content, which will be valued and priced as higher-quality phosphate rocks, and should generate strong demand from customers.

Between 1 January and 31 December 2016, Mianzhu Norwest produced an actual mine output of approximately 318,000 tonnes (309.9k dmt) of phosphate rocks with an average P₂O₅ content of 30.25%. Production in 2017 was curtailed by very heavy rains and lack of access to the mines. Production totalled 186,440 tonnes (wet basis) from January through June, when production was halted.

The 2013 CRU report forecasts a modest growth for global phosphate production with a compound annual average growth rate of 1.8% per year until 2022. Production of phosphate chemicals and fertilizers increased rapidly in China from 2007 through 2015, and China now accounts for an estimated 55% of global phosphate production. China's share of world production is anticipated to decrease in the 2018 – 2022 time period due to significant expansions coming on-line in the MENA region, especially Saudi Arabia and Morocco, and consolidation in the Chinese phosphate industry due to increased cost pressures forcing the shutdown of uneconomic plants and increasingly stringent environmental regulations. CRU believes that future Chinese production will closely match domestic demand.

While current measures such as tax cuts to low grade producers may benefit some, increased taxes for higher grade ores and potential limits on the exploitation of high grade ores may provide some challenges for AsiaPhos, these however are expected to be offset by expected government incentives to improve mining and processing efficiencies. AsiaPhos is expected to benefit from these measures

Their modern state of the art facilities are expected to further benefit the company by allowing them to maintain and possibly increase market share as lower grade and non-integrated producers will face higher operating costs.

Vertically integrated operations are favoured and AsiaPhos benefits from a number of factors such as operational experience, access to power, their new and more efficient plant and an established marketing network. This conclusion respecting the development of the Chinese phosphate industry was confirmed by CRU in a presentation at the 2014 CRU phosphate conference in March 2014.

While considered small scale at present and faced with a fragmented local market, the company's objectives of growing the operation to 400,000 tonnes production per annum in the near term and to 1 million tonnes annual production over the longer term would advance them to a larger scale producer category.

AsiaPhos believes that their vertically-integrated strategy will provide stability with the supply and price of raw material as well as quality assurance and production flexibility.

Environmental Studies

WGM is not aware of any social or environmental issues, which would affect exploration, development, and exploitation of the Mianzhu Norwest's properties herein described as currently practiced in the PRC, other than the required post-earthquake restoration activities which are currently being carried out in co-ordination with local government and regulators.

The Mianzhu Norwest current operating plans provide for capital and operating budgets to maintain the operations in compliance with PRC regulations. The Plant relocation completed in several stages between 2014 and 2016 is operating in compliance with the environmental law of the PRC and practices water recycling and off gas collection as well as slag disposal at a nearby cement operation.

Mianzhu Norwest acknowledges that various current conditions and practices would not meet the standards of international best practice and is continuing its efforts to move their operations towards international best practices.

Mianzhu Norwest also provides monetary reimbursement for a timberland compensation and forest recovery fund bi-yearly and has set aside provisions for rehabilitation and reforestation upon mine closure as well as investment in a number of areas to improve the mine workplace safety and productivity. The underground operations have recently installed a communication and personnel locating system as well as provision of mine refuge stations, fire control and prevention, and underground air quality monitoring.

As an initiative in community social responsibility, Mianzhu Norwest has also donated funds to help finance education for local students from low income families. The company plans to continue donating part of the annual net profit as well as funding scholarships for university students.

In conjunction with its 2016 Feasibility Study required by PRC to convert its exploration permit to a mining permit and increase production to Mianzhu Norwest was also required to prepare an Environmental Impact Assessment, Health and Safety Study and Social Risk Analysis among other things. The company in order to meet the required guidelines for the increased production levels has started the process of enhancing its mine water discharge treatment to reduce suspended solids, and to upgrade its mine ventilation system to enhance its air quality and solid waste management. Waste rock will be used as backfill and for the construction of retaining walls at the lower mining level adits to protect the loading platform areas from runoff. Additional work to prevent erosion and rock falls around the mining openings will include stabilizing the slopes with appropriate drainage and protective berms as required and re-vegetation of affected areas.

The recently enlarged Panda Reserve in addition to the local Nature Reserve now overlaps with many of the mines in the area. The Company has received official notice that its Mine 1 permit will not be renewed upon expiry at the end of February 2018, but it is still uncertain as to how this will impact other existing mining operations such as Mine 2 and exploration permit renewals (see asiaphos news release Nov 24, 2017).

Capital and Operating Costs

The total unit operating cost for phosphate rock in Y2013 based on approximately 128,000 dry tonnes was ¥243 per tonne mined including amortisation and depreciation, compared to ¥240 per tonne in 2012. For 2014 costs were ¥242 and for 2015 cost were ¥222 per tonne. The lower costs in 2015 were due in part to termination of the Dashan profit sharing agreement in July 2015 and the improved operating efficiency at the mines due to the recent upgrades. Cost for 2016 with approximately 310,000 dmt were ¥198/mt reflecting in part reduced taxes and operating efficiencies. Costs for 2017 were ¥189/mt.

Economic Analyses

WGM has elected to include its economic analysis, prepared as of December 31, 2017, despite the recent events. WGM understands that the non renewal of the Mine 1 permit and likely withdrawal of all the other permits will make the analysis redundant, however, its inclusion will provide a reference basis of comparison for both Asiaphos and its shareholders.

WGM has reviewed Mianzhu Norwest's proposed production plan and has completed an independent evaluation of the economics of the project until 2033. This review includes the original plans of gradual expansion of the mining capacity to 1.5 Mtpa (million tpa) following the scheduled completion of the reconstruction of the haulage road. WGM's economic analysis has not considered what permitting may be necessary to expand the mine production nor allowed for any delays in the production schedule that may result from failure to receive the necessary permits as required by the plan.

The basic assumptions in the Mianzhu Norwest model extend to the year 2033 starting from 2018. WGM presents this model, with the annual production rate projected to increasing from 372,000 tpa in 2018 to 1.1 Mtpa in 2024 and 1.4 Mtpa in 2028. Also, the WGM model is based on a 3% rate of inflation of both prices and capital and operating costs and an exchange rate of ¥6.2955 per US\$ (February 2018). While WGM believes that labour costs in the PRC will increase in the coming years, the increased capital cost allowed for some mechanization in the mine operations in the business plan should help mitigate these labour cost increases.

WGM has treated the year 2013 to 2016 as sunk revenue and cost and has discounted the net cash flow at various discount rates. As the financial analysis demonstrates, the production plan of Mianzhu Norwest has robust economics over the discounted period that has been analysed. The project shows an NPV of ¥1,624 million or US\$258 million (Appendix 1 and in Table 23) at a discount rate of 10%.

The sensitivity tested these variables from -25% to +25% of their Base Case values. As can be seen in the chart in Section 22, the net cash flow remains positive even at a 25% decrease in product prices. Also, as would be expected, the project is most sensitive to sales prices, followed by operating costs and is least sensitive to changes in capital costs.

WGM regards the greatest risk to this analysis is the potential impact of the haulage road from the mine to the Plant during the next three years until the haulage road reconstruction is expected to be completed.

The subsequent event of the non-renewal of Mining permit 1 and the uncertainty of the renewal of the permit for Mine 2 and the three exploration permits will be of material impact to the projected forecast. The extent to which the loss of the projected benefits can, or will be, offset by compensation from the government as a result of the non-renewal (expropriation) of the permit(s) is unknown at this time.

Adjacent Properties

The Mianzhu Norwest Mines, Cheng Qiang Yan and Shi Sun Xi, are both located in an historic phosphorite mining area that was active until the Wenchuan Earthquake.

WGM has determined that the adjacent “neighbours” at Cheng Qiang Yan are Longman Phosphate Company to the north and Qing Ping Phosphate Mining Company to the east of the current mining license area. There appears to be some unpermitted ground between the Cheng Qiang Yan permits and the FengTai exploration property to the northeast. Likewise, at Shi Sun Xi the adjacent “neighbours” are the Longman Phosphate Company to the west and An Xian Shi Sun Xi Mining Company to the east.

Cooperation between the neighbouring companies and Mianzhu Norwest was taking place with provision of access during operations and there continues to be good cooperation during post-earthquake restoration activities. The recent co-operation efforts include the cost sharing of restoring access to all properties in the appropriate and adjacent water-sheds which provide the main routes of access to the Mianzhu Norwest properties as well as others in the area.

Other Relevant Data and Information

This document only reports the phosphorite Resources for the two Mines of the Mianzhu Norwest. There are no additional requirements to report that would materially affect the estimation of the Resources other than has been noted herein.

As of June 2017, Mianzhu Norwest had restored production capability on seven levels at Cheng Qiang Yan and from six levels at Shi Sun Xi. In the fall of 2016, Mianzhu Norwest signed an MOU with Mianyang Aostar Phosphorous Chemical Industry Co. Ltd. one of the biggest manufactures of yellow phosphorous in PRC to enhance communications and cooperation regarding pricing and competition. Also for the provision by Mianzhu Norwest of up to 100,000 tonnes of rock if required and the collaboration of delivery to third parties of phosphate based chemicals exceeding the respective available inventory or capacity and to explore leveraging electricity rates to mutual benefit.

Exploration work will be required to evaluate the potential of the recently acquired FengTai property. No exploration work was completed in 2017.

To-date no comprehensive project studies have been carried out other than those required for mining permit applications and renewals. Conversion of Mineral Resources beyond the limits of current development will require additional drilling as well as reviews and updates of metallurgical, environmental, market, economic and related studies.

Interpretation and Conclusions

The phosphorite Resources at Mine 1 and Mines 2 controlled by Mianzhu Norwest are higher grade than many of the nearby phosphorite deposits. The high grade and relatively low impurities are favoured by markets. The Shi Fang type deposits have been in production in the region for many years the products produced include elemental phosphorous and downstream products as well as fertilizer from wet process phosphoric acid. The modern processing facility and vertically integrated operations provides greater operational flexibility.

Based on its initial assessment of the data from the Cheng Qiang Yan property and the Lomon property to the west, WGM believes that the phosphorite bed also extends onto the FengTai property.

WGM has estimated the phosphorite Resources for Mianzhu Norwest's Cheng Qiang Yan and the Shi Sun Xi properties at December 31, 2017. The table in Section 26 presents the estimated Mineral reserves based on projected production estimates for the three year period 2018-2020.

The company initiated underground sampling program has started to provide results for planning and to allow for a better understanding of the distribution and controls of the mineralization and for the conversion of mineral resources to reserves. Data collection, reporting and sampling protocols are improving but still fall short of industry practice.

Production forecasts as presented in the economic analysis has assumed future production increases would be allow mining and permits would be renewed. The non-renewal of the Mine 1 permit 9 February, 2018 and the uncertainty regarding the Mine 2 permit will severely impact the project economics and continued viability of the mining operations.

Recommendations

In light of the non-renewal of its Mine 1 mining permit and uncertainty of the continuation of Mine 2 and the renewal of other exploration permits recommendations to continue with the company's original post-Wenchuan Earthquake business plan will need to be revisited.

In light of the resulting uncertainty the company's main focus should be the pursuit of compensation for the lost potential revenue from Mine 1 and the possible inability to continue its mining and processing operations.

Every effort should also be made to restart mining at its Mine 2 and to enhance production from Mine 2 to replace as much of the lost production from Mine 1 as possible.

In order to maintain the fiscal benefits of a vertically integrated company reliant on the high quality rock from both the mines in the Qing Ping Town area the company should also consider acquiring other mining operations with suitable quality rock within an economic haulage distance from the plant. This would include the cost of the restoration and expansion of production as well as the long-term approach for the operations to reach standards that are more analogous to international best practice taking into consideration current and projected markets.

In the event that Mining operations will be able to continue at Mine 2 and assuming there are no impediments to renew mining licenses and convert exploration licenses, It is recommended that AsiaPhos extract the maximum value from all future exploration work by designing the programs with the perspective to expand existing Mineral Resources and to facilitate their conversion to Mineral Reserves based on NI 43-101 or equivalent standards. Fully involving a QP/CP at the planning stage of such exploration program, would assure the results of the work will be suitable for Mineral Resource or Reserve estimation.

WGM therefore recommends the initiation of new exploration methods to replace current practices of exploration through production by utilizing more extensive exploration drilling to remove more of the risk from mine production and grade control. This will allow for the collection of additional geologic information and sampling to allow for more accurate mine planning and provide the data to estimate mineable reserves. All of this however, is subject to satisfactory resolution of the issues on mining stoppage and the risk of non renewals of the permits.

WGM has concluded that the intensity of drilling information necessary to raise the category of Mineral Resources to Mineral Reserves requires at a minimum one sample of the mineralized formation for each 30,000 tonnes of resource. Interim grab and channel sampling could be used to collect stope samples, with locations precisely recorded. WGM continues to recommend AsiaPhos should assign a dedicated mining engineer to be fully responsible to maintain such database up to date at all times. Reconciliation at the end of each month should be easily accessible and auditable.

The proposed exploration program has been adjusted to suit the current situation. The proposed budget as presented in the table below for 2018 to 2020, is based on WGM's estimate of the work required for Mine 2, based on international practice and will allow for a reasonable program of improved Reserve definition and lower development risk, and allow for better mine plans and more accurate production forecasts. Key to future planning is the availability of the required data in a comprehensive unified database hosting all of the existing exploration, development and mining data.

**Estimated Annual Requirement Definition of Mineable Reserves/Resources
for Mianzhu Norwest, Mines 2**

	2018	2019	2020
Annual Production (tonnes)	23,000	305,000	350,000
Number of Exploration samples based on subsequent year production	8	10	12
Number With Contingency	11	14	17
Drilling Required (metres)	440	560	720
Drilling Cost (US\$ x 1,000)	\$66	\$84	\$108
Sampling Cost (US\$)	\$2,423	\$2,889	\$3,634
Footwall Drifting (metres)	100	150	150
Footwall Development (US\$)	\$17,000	\$26,000	\$26,000
Exploration Management and Administration	\$22,000	\$28,000	\$34,000
Total Exploration Cost (US\$ x1,000)	\$107,423	\$140,889	\$171,634

2. INTRODUCTION AND TERMS OF REFERENCE

2.1 INTRODUCTION

Watts, Griffis and McOuat Limited ("**WGM**") as part of its ongoing technical advisory services was engaged by AsiaPhos Limited ("**AsiaPhos**") to update its March 23, 2017 NI 43-101 report and Mineral Resource estimate. This update describes the work completed since December 31, 2016 including for the Cheng Qiang Yan (Mine 1) and Shi Sun Xi (Mine 2) mining properties and the FengTai exploration permit. The availability of more than three consecutive years of development and production data as well as underground sampling has allowed for the conversion of some the Mineral Resources to Mineral Reserves. The report incorporates all available exploration and production data received from AsiaPhos for the fiscal year ending December 31, 2017 and observations of the WGM QPs during their visit in November 2017. The effective date of the Mineral Resource estimate is December 31, 2017.

AsiaPhos was listed 7 October, 2013, on the Catalist board of the Singapore Exchange Securities Trading Limited ("**SGX-ST**"), (trading Symbol 5WV). The company has two operating properties, Cheng Qiang Yan, (Mine 1) and Shi Sun Xi (Mine 2) held by Sichuan Mianzhu Norwest Phosphate Chemical Co. Ltd ("**Mianzhu Norwest**"), a wholly owned subsidiary of AsiaPhos. During 2015 AsiaPhos also completed the acquisition of a 55% equity interest in 德阳市峰泰矿业有限责任公司 (Deyang FengTai Mining Co., Ltd. ("**FengTai**") which holds the FengTai exploration license located approximately 500 metres northwest of Cheng Qiang Yan, (Mine 1).

All the properties are located in Sichuan Province, People's Republic of China ("**PRC**"). Mianzhu Norwest has been restoring its operations following the May 12, 2008 Wenchuan Earthquake. The report also updates the status of the current exploration, development and mining operations and improvements to the access roads, as part of the continuous reporting obligations of AsiaPhos.

WGM had originally been retained in 2010 by Norwest Chemicals Pte Ltd, the immediate holding company of Sichuan Mianzhu Norwest Phosphate Chemical Co. Ltd ("**Mianzhu Norwest**"), to provide technical assistance to the company and to prepare an independent technical report ("Technical Report") in compliance with the requirements of the Catalist Board of the Singapore Exchange Securities Trading Limited as specified by Practice Note 4C, Disclosure Requirements for Mineral, Oil and Gas Companies. Subsequently WGM has prepared updated reports for AsiaPhos incorporating the 2013 to 2016 exploration and production results for the company's 2013 to 2016 annual reports.

WGM has extensive experience with these operations gained as a result of their eight site visits since 2010. These include the most recent due diligence visit by Don Hains, P.Geo., WGM Senior Industrial Minerals Specialist, and Jack Beichen Yue, P.Eng., WGM Associate Mining Engineer in November 8-9, and 7-12, 2017, respectively. The QPs visited the processing facility near Mianzhu City and met with Mianzhu Norwest Mine management, engineering and geological staff to review results for the first six months of 2017 and discuss the implementation of enhanced exploration, mine data collection and reporting procedures. WGM's visit also focussed on advising AsiaPhos on appropriate exploration parameters for upgrading more of the current Mineral Resources to Mineral Reserves, reviewing the current development advances in support of planned operational expansion, and the company's ongoing efforts to engage international best practices. The collection of additional independent reference samples was not warranted, nor was it possible as the mines are not operational due to extended the rainy season which washed out the access road. The QP has relied on the production statistics and related information for the fiscal year ending December 31, 2017 provided by AsiaPhos.

WGM was previously provided with a draft of the Feasibility Study for the conversion of the Cheng Qiang Yan (Mine 1) exploration permit to a mining permit and increasing its Annual Output to 300,000 Tonnes prepared by "四川省有色科技集团有限责任公司" (Sichuan Non-Ferrous Technology), as well as preliminary results from the 2016 exploration and drilling at Shi Sun Xi (Mine 2) by 德阳化探队", Deyang Geochemical team.

This independent technical report has been prepared according to the reporting standards of the National Instrument 43-101 Standards of Disclosure for Mineral Projects, including Companion Policy 43-101, as promulgated by the Canadian Securities Administrators ("NI 43-101") for Reporting of Exploration Results, Mineral Resources and Ore Reserves and in compliance with the requirements of the Catalist Board of the Singapore Exchange Securities Trading Limited ("SGX-ST") as specified by Practice Note 4C, Disclosure Requirements for Mineral, Oil and Gas Companies.

WGM has incorporated summary information from its previously published NI 43-101 compliant Technical Reports dated March 3, 2017, March 9, 2016, March 28, 2014 and November 21, 2014 the reader is referred to these reports for detailed description of the activities during those periods.

The data supporting the statements made in this report have been verified for accuracy and completeness by the authors. With due regard for the standards for documentation, of resources in China, no meaningful errors or omissions were noted.

The effective date of this Technical Report is December 31, 2017 and this Technical Report is dated March 8, 2018. WGM confirms to the best of their knowledge, that other than the official notice of Non-renewal of the Mining permit for Mine 1 (which is noted in the

appropriate sections) there is no new material information that has arisen between the effective date and the date of the Technical Report which would be required to be included in the Technical Report for completeness.

2.2 TERMS OF REFERENCE

This report has been completed pursuant to the ongoing engagement by WGM to provide technical advisory services to AsiaPhos. WGM's scope of work included updating the Mineral Resources for Mine 1 and Mine 2, as well as reporting on additional exploration results and operations during 2017.

Don Hains, WGM Senior Industrial Minerals Specialist, and Jack Beichen Yue, WGM Associate Mining Engineer visited the company's offices at Mianzhu city during November 8-9, and 7-12, 2017 respectively and met with mine management, engineering and geological staff and conducted a review of mine and exploration data collection and reporting procedures.

Operations at both Mine 1 and Mine 2 were suspended in early June 2017. Subsequently the company received water and environmental notices which required the company amongst other things to seek prior approval before resuming mining in Shi Sun Xi. Due to work stoppages or closures orders for many of the mines in the area the haulage roads which were damaged during the rainy season were not repaired. The company was thus unable to comply with the deadline for rehabilitation and also resuming mining in Chengqiangyan, due to the road closures. Continuous efforts to get approval to restart have been unsuccessful to date.

The mining and exploration permit areas were not visited in November as the mining operations remained suspended due to road closure. Operations at the mines were suspended in June 2017 preventing mining for the remainder of 2017. Subsequent water and environmental remedial repair work orders were issued by the government and approvals are required to re-open the mines. Due to the road access restrictions work to stabilize waste rock storage areas near mine portals remains incomplete.

No exploration was conducted on the FengTai property.

WGM QPs toured the processing plant and new offices, discussed the implementation of enhanced development and mining data collection protocols for both Cheng Qiang Yan (Mine #1) and Shi Sun Xi (Mine #2) and were updated on the progress of the Mian-Mao Highway (the Haulage way). Both Mr. Wang Xuebo, general manager and Mr. Luo, Mine General Manager assisted at the meetings. WGM, as part of its site visit also reviewed the progress on the implementation of the proposed expansion plans and the work required to achieve conversion of Mineral Resources to Reserves.

WGM accompanied by Mr. Zhang Yuanting toured the processing facility at Mianzhu and visited the newly completed offices at the processing site.

The mining operations were previously visited in October 2015 by Jack Yue, P.Eng, WGM Associate Mining Engineer, who visited new wells (adits) #1 at Mine 1 and 1709 Level at Mine 2. WGM Senior Industrial Minerals Specialist, Don Hains, P.Geo., visited the site on April 22 and 23, 2014 accessing the Chen Qiang Yan mine through Adit #1 (1950 level) and the Shi Sun Xi mine through the adit at the 1709 level. Both inspected the project advances and held extensive discussions with mine management and operational personnel at that time.

WGM has relied on documentation and information from Mr. Luo and Mr. Wang respecting the property which it believes to be representative. Mr. Hains also held extensive discussions with management including, Mr. Zhang Yuanting of AsiaPhos, and Mr. Luo Guangming, Mine Manager, and Mr. Meng Shenghong, Assistant Mine Manager.

The findings are summarized and presented with recommendations in a report prepared in compliance with Canadian Securities Administrators' NI 43-101 and definitions of the Council of the Canadian Institute of Mining, Metallurgy and Petroleum ("**CIM**") standards revised May 10, 2014 and in compliance with the requirements of the Catalist Board of the Singapore Exchange Securities Trading Limited as specified by Practice Note 4C, Disclosure Requirements for Mineral, Oil and Gas Companies.

WGM has assisted the company in a technical advisory capacity since 2010 and has completed seven visits to date. WGM also prepared technical reports, which summarized the status of the operations, geological exploration, and Mineral Resource estimates for the Cheng Qiang Yan and Shi Sun Xi properties of AsiaPhos Limited in connection with the initial public offering of its shares on the Catalist Board of the SGX-ST and more recently the preparation of its annual reports for 2013 to 2016.

This report updates the Mineral Resources and Mineral Reserves for the properties incorporating the 2017 exploration and production results to December 31, 2017 for:

- Cheng Qiang Yan Property;
- Shi Sun Xi Property; and, comments on the
- FengTai exploration property.

Mianzhu Norwest continued its rehabilitating of the previous operations of both the Mines and has completed the new processing plant, offices and related infrastructure. A sufficient amount of the required engineering and environmental modifications have been completed during the last four years to allow for annual ore extraction of up to 300,000 tonnes and in conjunction with historical production has data allowed for the preparation of the conceptual financial model included with this report.

The current report reviews the advances made to date and additional exploration and detailed engineering work and reporting being implemented in order to meet international requirements for the definition of Reserves. This work largely entails underground development, exploration drilling and more extensive mine planning to support estimation of Reserves and production forecasts both in short and long term mine plans.

The Qualified Persons and Joe Hinzer as well as other partners, directors and substantial shareholders of WGM and their associates are independent of AsiaPhos Limited, its directors and substantial shareholders. The Qualified Persons and Joe Hinzer as well as other partners, directors and substantial shareholders of WGM and their associates do not have any interest, direct or indirect, in AsiaPhos Limited, its subsidiaries or associated companies and will not receive benefits other than remuneration paid to the firm in connection with the qualified person's report. Remuneration paid to the Qualified Persons or WGM in connection with this report is not dependent on the findings of this report.

2.3 SOURCES OF INFORMATION

This WGM report includes personal observations and data collected during the due diligence visit November 7 to 12, 2017 by the authors as well as data provided by AsiaPhos including production statistics and product sales data for the fiscal year ending December 31, 2017.

Extracts from the draft report entitled “[Cheng Qiang Yan] Annual Output of 300,000 Tons Phosphate Rock Technical Transformation Project. Feasibility Study Report” by Mianzhu, Sichuan Mianzhu Phosphorus Chemicals Co., Ltd.” *dated 2016-08-31* for Cheng Qiang Yan (Mine 1), prepared by 四川省有色科技集团有限责任公司" (Sichuan Non-Ferrous Technology), as well as extracts from preliminary results for the 2016 exploration and drilling at the Shi Sun Xi (Mine 2) property prepared by 德阳化探队”, Deyang Geochemical team, received February 24, 2017.

WGM has also included excerpts from its September 26, 2016 letter report to AsiaPhos re “Trip Report (July 22 to 25, 2016)”.

Associate Mining Engineer, Jack Beichen Yue, P.Eng., previously visited the site in October 23-25, 2015 to view the active working and development areas at both the Chen Qiang Yan and the Shi Sun Xi mine as well as the access road. Mr. Yue also reviewed the new exploration data from the Sichuan Province Geological Exploration and Development Bureau Geochemistry Team used as part of their applications for permit renewals.

WGM has relied on and accepted as reasonable, documentation and information from Mr. Luo and Mr. Wang respecting the property.

WGM incorporated information from its previously published NI 43-101 compliant Technical Reports entitled:

- *“Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People’s Republic of China”* dated March 17, 2017, by Donald H. Hains, P.Ge., Senior Associate Industrial Mineral Specialist, and Jack Beichen Yue, P.Eng., Associate Mining Engineer;
- *“Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People’s Republic of China”* dated March 9, 2016, by Donald H. Hains, P.Ge., Senior Associate Industrial Mineral Specialist, and Jack Beichen Yue, P.Eng., Associate Mining Engineer;
- *An Updated Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, Mianzhu City, Sichuan Province, People’s Republic of China”* dated November 21, 2014 by Donald H. Hains, P.Ge., Senior Associate Industrial Mineral Specialist;
- *“Site Visit Report, Cheng Qiang Yan Phosphate Deposit and Shi Sun Xi Phosphate Deposit, Mianzhu City, Sichuan Province, People’s Republic of China for AsiaPhos Limited”* dated November 14, 2014, by Donald Hains, P.Ge., Senior Associate Industrial Minerals Specialist;
- *“An Updated Technical Review of the Cheng Qiang Yan Phosphate Deposit and Shi Sun Xi Phosphate Deposit, Mianzhu City, Sichuan Province, People’s Republic of China for AsiaPhos Limited”* dated March 28, 2014, by Donald H. Hains, P.Ge., Senior Associate Industrial Mineral Specialist, Jack Beichen Yue, P.Eng., Associate Mining Engineer, and William Glover, P.Eng., Senior Associate Mining Engineer; and,
- *“A Technical Review of the Cheng Qiang Yan Phosphate Deposit and Shi Sun Xi Phosphate Deposit, Mianzhu City, Sichuan Province, People’s Republic of China for AsiaPhos Private Limited”* dated February 28, 2013, by Donald H. Hains, P.Ge., G. Ross MacFarlane, P.Eng., and the Offering documents filed with the SGX-ST.

WGM has relied on documentation and information from Mr. Luo and Mr. Wang respecting all three of the properties.

WGM also refers to its previous experience and visit to the Property as noted in the following:

WGM Senior Associate Mining Engineer, William Glover, P.Eng., and WGM Associate Mining Engineer, Jack Beichen Yue, P.Eng., conducted a site visit from November 25 to 30, 2013. Two operating adits one at each mine, Level or Well 15 at Cheng Qiang Yan (Mine 1) and Level or Well 1950 at Shi Sun Xi (Mine 2), were visited to observe current practices. Extensive discussions with mine management and operational personnel were also undertaken as part of the operational review process.

Six independent reference samples were collected (three from each mine), these were assayed for both oxide and trace metals to provide a full base line profile.

Extensive information was also gathered during earlier site visits. The sites were originally visited by: James Spalding, WGM Senior Associate Geologist; Ross MacFarlane, WGM Senior Associate Metallurgical Engineer; and Jack Beichen Yue, WGM Associate Mining Engineer from February 23, 2010 to March 3, 2010. Subsequent site visits, were conducted by Ross MacFarlane and Mr. Yue on November 27 and 28, 2011, and then by Mr. Yue on May 31, 2012 and November 26 to 28, 2012. Donald Hains, Senior Associate Industrial Mineral Specialist reviewed the work previously completed by James Spalding (who retired from active practice for personal reasons in 2011) as well as all of the current results.

In addition to the earlier due diligence visits WGM also visited the Mianzhu Norwest downstream processing facility and elemental phosphorous manufacturing facility in October 2013 and April 2014, now re- built at the New Gongxing industrial zone, as well as the Geological Institute charged with the past exploration programs and interviews were held with the primary Chinese geological consulting firm, the Sichuan Institute of Chemical Engineering and Geological Exploration, and with the Mianzhu Norwest personnel involved with the mining, transportation and processing operations.

Donald H. Hains, P.Geo., Senior Associate Industrial Mineral Specialist has reviewed all the new exploration data and Mineral Resource and Mineral Reserve estimates.

In preparation of this report, the qualified person has taken into account all relevant information supplied by the company. WGM has also previously reviewed unpublished internal reports and other information supplied by Mianzhu Norwest and the geological publications of the government of PRC. While WGM is unable to verify some of the information presented in these reports, WGM has no reason to believe that the information is not representative. A list of documentation reviewed and other sources of information are provided in the "References" section at the end of this report.

2.4 DETAILS OF PERSONAL INSPECTION OF THE PROPERTY

Don Hains, P.Geo., WGM Senior Industrial Minerals Specialist, and Jack Beichen Yue, P.Eng., WGM Associate Mining Engineer visited the company's offices at Mianzhu City November 7 to 12, 2017 and met with mine management, engineering and geological staff and conduct a review of mine and exploration data collection and reporting procedures.

The mining and exploration permit areas were not visited as the mining operations were suspended due to access road closures because of heavy rains in 2017. The WGM QPs toured the processing plant, discussed the advances in the implementation of enhanced development and mining data collection protocols and planning tools discussed previously for both Cheng

Qiang Yan (Mine #1) and Shi Sun Xi (Mine #2) and drove up the Mian-Mao Highway (the Haulage way) to observe the latest update on the progress of the construction.

During meetings with AsiaPhos staff, Mr. Yue focused several issues with Mr. Mu Yongzhong, Mine Manager, and Mr. Wang Xuebo, General Manager also joined discussion. This included a detail review of the recent underground drilling program and results at Mine #2. Additional plan on underground drill at Mine #1 was also discussed. WGM accompanied by Mr. Zhang Yuanting toured the processing facility at Mianzhu.

Monthly reports used to verify development with contractors were also reviewed. Revised mine design drawings were examined and more clearly showed planned development. The record keeping of development reconciliation was precise and well maintained suitable for future audit, but more detail was warranted. The implementation of the more detail grade control program was discussed with Mr. Luo to assess the UG sampling program started in the second half of 2016 as well as the advances on updating the geological maps and preparation of the unified database.

Previously (October 2015) Jack Beichen Yue, P.Eng., WGM Associate Mining Engineer conducted a due diligence review and assessment of the development of Cheng Qiang Yan (Mine #1) and Shi Sun Xi (Mine #2), the progress of the Mian-Mao Highway (the Haulage way); and the mine planning to update the Mineral Resource and reserve and potential of further exploration which included underground inspection of then New Well #1 at Mine 1 and 1709 Level at Mine 2.

The WGM QP inspected the underground development, transportation system, and operation. The progress on ground control and transportation system is well noted. WGM accompanied by Mr. Luo, Mine General Manager, visited Mine 1. WGM confirmed the rail system, which was observed as work in progress in previous visit, has been completed and is in service in the lowest level of the mine. The electricity powered hauling system worked effectively and efficiently. The dropping points inside the heading connect to ore passes that connect most of the levels. WGM also observed ramps and manways that connect levels. These developments allow personnel and equipment to access all level from underground and avoid exposure to hazardous environment, such as steep slopes and falling rocks along the mountain side. Also observed at Mine 1 are the improved ground control measures. The portal was reinforced with solid concrete structure; the fractured areas were supported with rock bolts, mesh screen, steel arches with timber filling, and shotcrete. The quality of the ground support installation is above standard.

Mr. Yue was accompanied on the site visit by Mr. Luo Guangming, Mine Manager of AsiaPhos, and Mr. Zhang Wei, Geology Manager of Sichuan Province Geological Exploration and Development Bureau (the Geological Bureau). Mr. Yue also had discussions with Mr. Wang Xuebo during the course of the site visit.

This followed the earlier visit by WGM Senior Industrial Minerals Specialist, Don Hains, P.Geo., during April 22 and 23, 2014. The QP, accessed Cheng Qiang Yan mine via Adit #4 (2005 level) and the Shi Sun Xi mine through the adit at the 1709 level. The QP also discussed details of the FengTai property but was unable to personally visit the property. Mr. Hains also visited the processing facilities at the New Gongxing industrial zone and held discussions with management respecting these facilities and plans for production and expansion.

Earlier visits by various WGM's team members including: WGM Senior Associate Mining Engineer, William Glover, P.Eng.; WGM Associate Mining Engineer, Jack Beichen Yue, P.Eng.; and Ross MacFarlane; P.Eng., had visited the property at various times between 2010 and 2013. Previous visits included underground operations at Mine 1 (Cheng Qiang Yan) and Mine 2 (Shi Sun Xi) to observe mining practices and, truck loading operations, ongoing development, assess the overall operational standards and safety practices, and collection of verification samples and to discuss and review the recommendations to further increase the development efficiency and safety standards.

2.5 UNITS AND CURRENCY

Units of measurement used in this report conform to the SI (metric) system. Tonnages are presented in tonnes ("t") equivalent to 1,000 kilograms (kg), metric tonnes per annum ("tpa") or metric tonnes per day ("tpd"). Linear measurements in metres ("m"), square metres ("m²"), cubic metres ("m³"), kilometres ("km"), square kilometres ("km²").

Currencies in this report are quoted in United States of America dollars ("US\$"), Singapore dollars ("S\$"), and/or China Renminbi ("¥"). The conversion rate from ¥ to S\$ was **0.209106** as at February 2018. The Conversion rate from ¥ to US\$ used in this report was 6.2955 being the approximate exchange rate as at February 2018. To complete the financial analysis of the AsiaPhos 2016 business plan, the above exchange rate was used.

2.6 DEFINITIONS

The terms and their definitions used throughout the report are shown in Table 1.

TABLE 1.
LIST OF DEFINITIONS

Terms	Description
NI 43-101	National Instrument for the standards of disclosure for mineral projects for listing with Canadian regulators TSX/TSXV etc. (revised June 30, 2011).
JORC	The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves that sets out minimum standards, recommendations and guidelines for Public Reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves (as revised).
CIM Standards	Standards, set by Canadian Institute of Mining Metallurgy and Petroleum, to establish definitions and guidelines for the reporting of Exploration Information, Mineral Resources and Mineral Reserves in Canada (last revised May 10, 2014).
Technical Report	This independent technical report dated November 21, 2014 prepared by WGM in accordance with NI 43-101 relating to the Mines.
Offer Document	The Offer Document dated 25 September 2013 issued by AsiaPhos Limited and the Vendors, including the Appendices thereto and the Application Forms in respect of the Initial Invitation for Listing on Catalist of the Singapore Exchange Securities Trading Limited.
Dashan	绵竹市大山矿业有限责任公司 (Mianzhu Dashan Mining Co., Ltd).
New Gongxing Facilities	The new facilities for Chemical Production Operations located at the New Gongxing Site.
New Gongxing Site	The new land premises located at Xiangliu Village, Gongxing Town, Mianzhu City, Sichuan Province, the PRC, comprising Phase 1 Land and Phase 2 Land.
Mine 1 / Cheng Qiang Yan	The 四川绵竹华丰磷化工有限公司城墙岩磷矿 (Cheng Qiang Yan phosphate mine), located in Qing Ping Town, Mianzhu City, Sichuan Province, the PRC, details of which are set out in the section entitled “General Information on our Group – Mining Operations” of the Offer Document.
Mine 2 / Shi Sun Xi	The 四川绵竹华丰磷化工有限公司石笋西磷矿 (Shi Sun Xi phosphate mine), located in Qing Ping Town, Mianzhu City, Sichuan Province, the PRC, details of which are set out in the section entitled “General Information on our Group – Mining Operations” of this Offer Document.
Mines	Mine 1 and Mine 2 collectively.
FengTai	The FengTai exploration property located northwest of Mine 1 and 55% owned by Sichuan Mianzhu Norwest Phosphate Chemical Co., Ltd (SMNPC)
Mianzhu Norwest Mines and Plant	四川绵竹华丰磷化工有限公司 (Sichuan Mianzhu Norwest Phosphate Chemical Co., Ltd. (SMNPC) and the New Gongxing Facilities.
The Wenchuan Earthquake	A Richter scale 8.0 magnitude earthquake on May 12, 2008 with epicenter in Wenchuan County, Sichuan, China.
Rebuilding Program	The construction of facilities for the Chemical Production Operations and offices at the New Gongxing Site following the Wenchuan Earthquake and the Relocation Exercise.
The Landslide	The landslide that occurred in August 2010 that damaged the access road to the mining activities of Mianzhu Norwest and neighbouring operations.
Rock slide	The falling of rocks down the side of the mountain due to slope instability, often caused by heavy raining or local shocks.
Mtpa	Million tonnes per annum.
Dmt	Dry metric tonne (bases on mine data the moisture content of the ore ranges from approximately 2-4%)
Net Cash Flow	The total cash minus the total liability over a given period of time.
Base Case	Financial model using most reasonable/conservative assumptions.
Phosphorite rock	A phosphate bearing sedimentary rock with a high enough content of phosphate minerals to be of economic interest.
Phosphorite Bed	A continuous layer or rock unit of phosphate bearing rock.
Phosphorite material	The chemical component, which is a part of phosphorite deposit that is used to form the final product.
Phosphorite, Phosphorite Resources, Phosphoritic Deposit and Phosphate Deposit	The rock unit that contains the Phosphorite rock with the description and economic context.
Reserve Definition Drilling	The type and extent of drilling including the procedures followed to identify Mineral Resources and Reserves.
Rehabilitating	The reconstruction and restoration of the infrastructures and installations to allow continuation of the exploration, development and mining operations.

TABLE 1.
LIST OF DEFINITIONS (continued)

Terms	Description
Exploration information	The geological, geophysical, geochemical, sampling, drilling, analytical testing, assaying, mineralogical, metallurgical and other similar information concerning a particular property that is derived from activities undertaken to locate, investigate, define or delineate a mineral prospect or mineral deposit.
Mineral Resource	See Section 14.2
Inferred Mineral Resource	See Section 14.2
Indicated Mineral Resources	See Section 14.2
Measure Mineral Resources	See Section 14.2
*Mineral Reserve	See Section 14.2
Probable Mineral Reserve	See Section 14.2
Proven Mineral Reserve	See Section 14.2
Feasibility study	a comprehensive study of a deposit in which all geological, engineering, operating, economic and other relevant factors are considered in sufficient detail that it could reasonably serve as the basis for a final decision by a financial institution to finance the development of the deposit for mineral production.
Preliminary feasibility study; “pre-feasibility study”	a comprehensive study of the viability of a mineral project that has advanced to a stage where the mining method, in the case of underground mining, or the pit configuration in the case of an open pit, has been established, and which, if an effective method of mineral processing has been determined, includes a financial analysis based on reasonable assumptions of technical, engineering, operating, economic factors and the evaluation of other relevant factors which are sufficient for a qualified person, acting reasonably, to determine if all or part of the Mineral Resource may be classified as a Mineral Reserve.

* Mineral Reserve is defined by CIM definition (as mandated by NI 43-101) and Ore Reserve by JORC. In order to avoid confusion in this report the term Reserve or Reserves are used throughout with the meaning as described.

3. RELIANCE ON OTHER EXPERTS

This NI 43-101 Technical Report on the phosphorite Resources on Cheng Qiang Yan and Shi Sun Xi in Sichuan Province, and FengTai exploration property has been prepared by WGM for AsiaPhos Limited, the holding company of Mianzhu Norwest. The information, conclusions, opinions, and estimates contained herein are based upon:

- WGM's most recent site visits;
- The draft ore reconciliation report for Mine 1 entitled "*Sichuan Mianzhu Huafeng Phosphorus Chemical Company Ltd. Cheng Qiang Yan Phosphate Rock, Annual Mine Reserve Annual report 2017*" dated December 20, 2017 and prepared by the Geological and Mineral Exploration and Development Bureau of Sichuan Province for production data and resource and reserve reconciliation data related to Mine 1;
- WGM's observations and independent samples collected from previous site visits;
- Information available to WGM at the time of preparation of this report;
- Translation of the parts of the draft feasibility study Cheng Qiang Yan (Mine #1) exploration data for and Shi Sun Xi (Mine #2) and prior reports from Sichuan Province Geological Exploration and Development Bureau Geochemical Exploration Brigade for all three of the properties, including FengTai submitted in support of permit renewals;
- Data, reports, and opinions supplied by Mianzhu Norwest and third party sources listed as references; and,
- Assumptions, conditions, and qualifications as set forth in this report.

WGM has relied on the AsiaPhos Offer Document dated September 25, 2013, and previous annual report for 2013, 2014, 2015 and 2106 respectively as well as press releases, regarding the status of permit renewals, legal title, property agreements, corporate structure, taxes, and required information concerning social, environmental and operational information and the status of related permits all of which have for the largest part had been prepared by independent counsel and are reportedly compliant with local regulatory requirements.

WGM has relied on the information noted above presented as part of the listing application as well as any recent updates and news releases received and has not independently researched property title or mineral rights for the exploration permits and Mines under study and expresses no opinion as to the current title and ownership status of the Mianzhu Norwest Mines and Plant nor related permitting and compliance issues.

This NI 43-101 Technical Report on the phosphorite Resources on Cheng Qiang Yan and Shi Sun Xi in Sichuan Province and FengTai exploration property has also been completed with reliance on numerous geological and technical studies previously prepared by various government and related organizations in the PRC, the most recent of which being draft feasibility study for Cheng Qiang Yan entitled: Draft Copy: "[Cheng Qiang Yan] Annual Output

of 300,000 Tons Phosphate Rock Technical Transformation Project. Feasibility Study Report” dated July 2016 and preliminary exploration data for Shi Sun Xi work commenced in 2016. While WGM has not been able to verify all of the data presented, WGM based on its own due diligence and reviews has no reason to believe that the information presented in these reports pertaining to the current mining operations and development work in progress is not representative.

WGM assessed the project data and geology along with developing a computer model of each of the deposits to complete the deposit evaluation and the phosphorite resources assessment for this project. The most recent information as presented in this report has been prepared under the supervision of Donald Hains, Senior Industrial Minerals Specialist.

WGM had previously collected a number of independent verification samples from various operational sites at both Mine 1 and Mine 2 as part of its extensive visit in April 2014. WGM has relied on these sample results reported by independent SGS Laboratories, Tianjin, PRC. These results which confirm the assays reported for the previous field programs, local laboratory analytical results and historical drilling as previously reported by the Geological bureaus confirms that the geological work was completed by experienced and well-regarded exploration personnel and their conclusions can be relied upon.

4. PROPERTY DESCRIPTION AND LOCATION

4.1 LOCATION

The Cheng Qiang Yan and Shi Sun Xi properties and FengTai properties are situated north of Chengdu in the west-central portion of Sichuan Province PRC, almost exactly on the physiological break between the extension of the Tibetan highlands and the Sichuan Basin. The properties are located in the district of Mianzhu City approximately 60 km northeast of Chengdu population 18 million. The topography in the immediate area of mines is extremely rugged with steep northeast to southwest trending mountains and valleys or canyons, with alpine vegetation cover. The elevations of the Mines range from 3,200 m to about 1,800 m. Each of the properties, Cheng Qiang Yan and Shi Sun Xi, and FengTai is defined by existing mining and/or exploration permits with surveyed coordinates.

Each of the properties, Cheng Qiang Yan, Shi Sun Xi, and FengTai, is defined by existing mining and/or exploration permits with surveyed coordinates. The approximate geographic locations of the permit centre points are:

Cheng Qiang Yan	Shi Sun Xi	FengTai
N31°36'14.00"	N 31°38'37.00"	N 31°38'00.00"
E 104°00'14.00"	E 104°04'43.00"	E 103°59'30.00"

The Mianzhu Norwest processing plant is located in Gongxing Town (Figure 1) located adjacent to Mianzhu City.

4.2 PROPERTY DESCRIPTION

There is one phosphorite bed currently being mined in Mianzhu Norwest's area of interest and it occurs on all three properties. The deposit type is known as the "Shi Fang" type. The main phosphorite bed at Cheng Qiang Yan currently being mined averages about 5.9 m in thickness with an average grade of about 28.2% P₂O₅. The bed strikes generally ENE -WSW and dips, generally, 43° to 57° to the NW. Recent geological updates have confirmed that the southwestern portion of the main bed has been upfaulted (Figure 2) however the exact location and extent of the north trending fault is difficult to trace on surface due to the steep

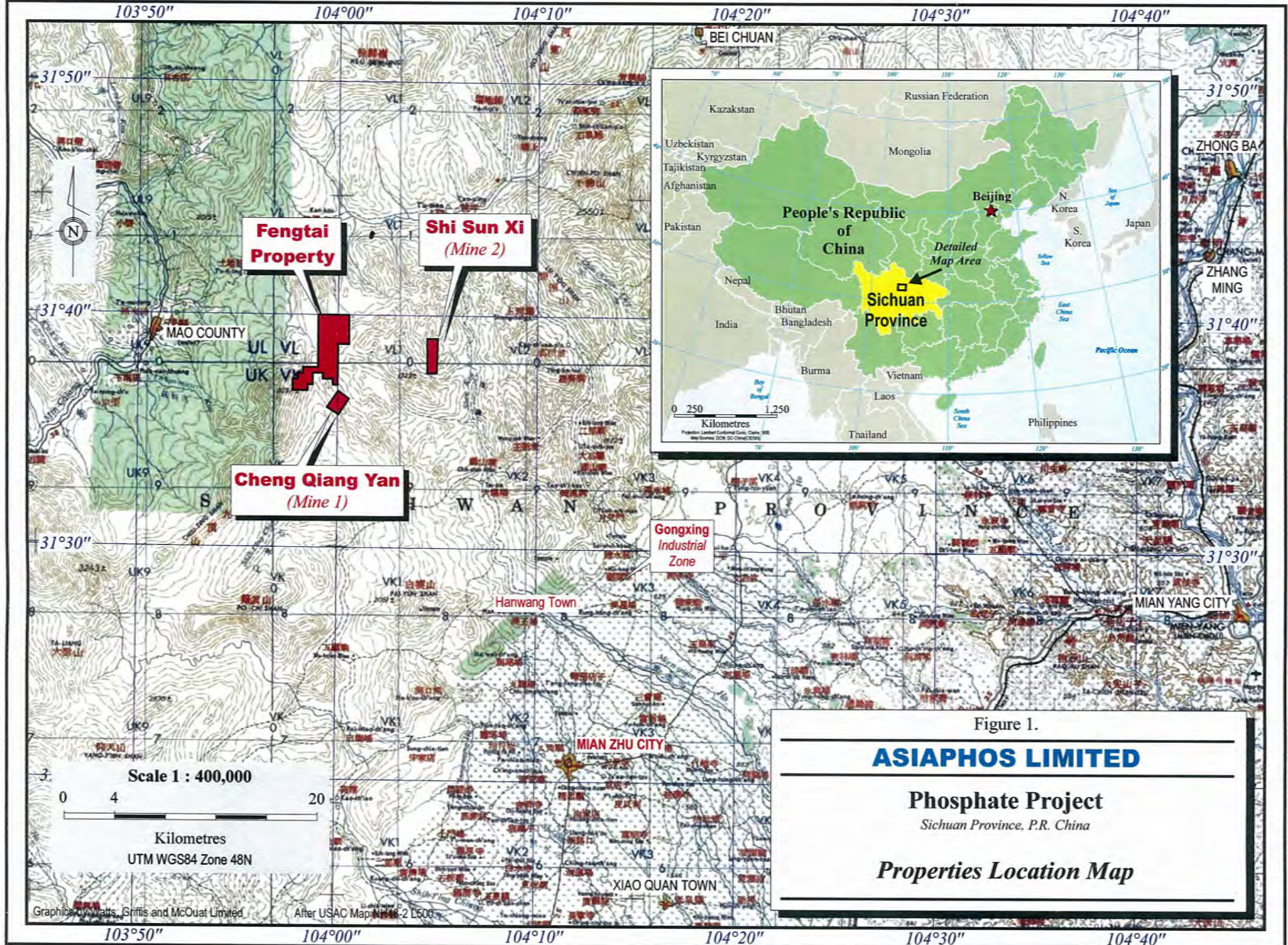


Figure 1.

ASIAPHOS LIMITED

Phosphate Project
 Sichuan Province, P.R. China

Properties Location Map

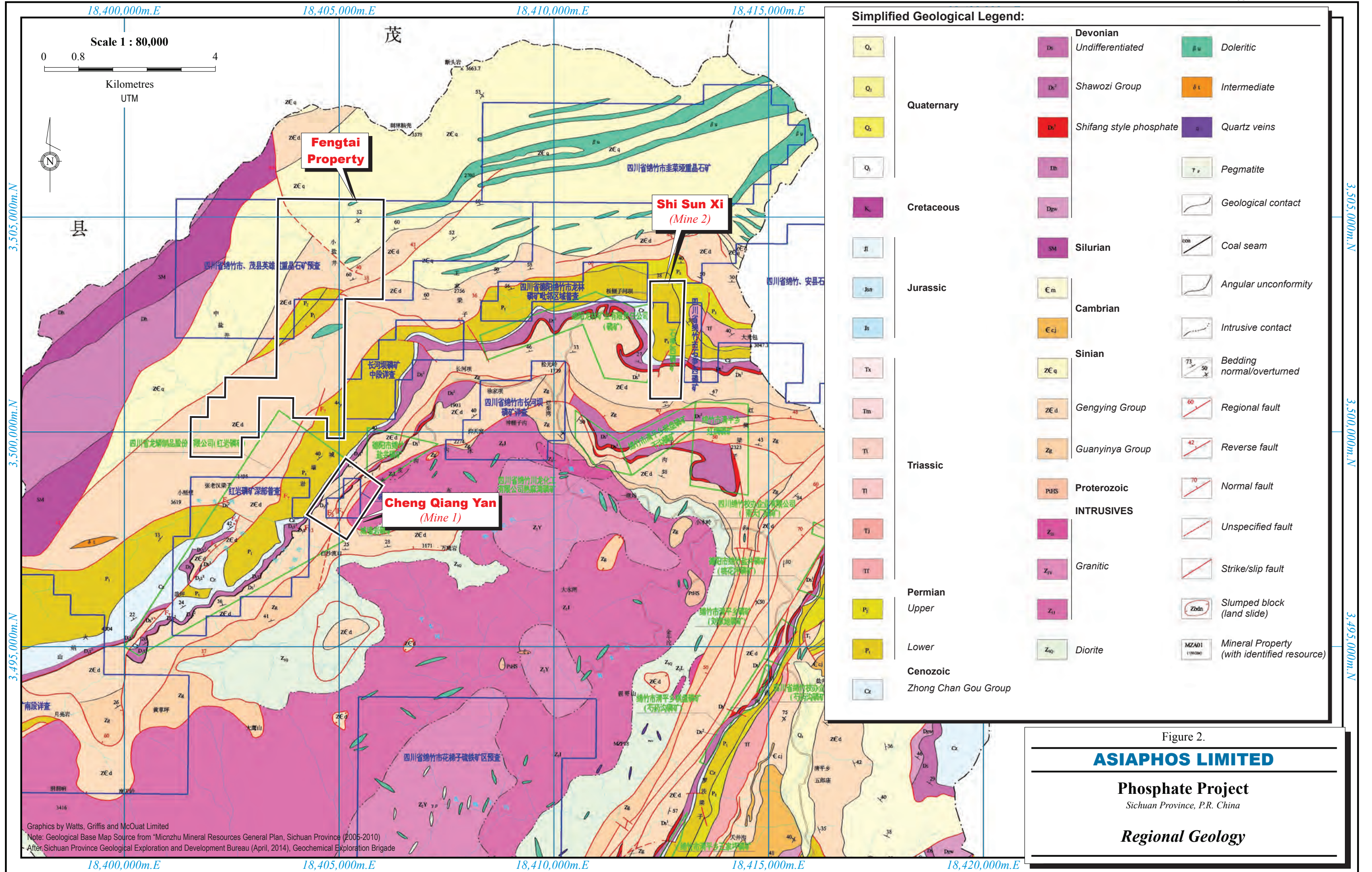


Figure 2.
ASIAPHOS LIMITED
Phosphate Project
Sichuan Province, P.R. China
Regional Geology

Graphics by Watts, Griffis and McQuat Limited
Note: Geological Base Map Source from "Mianzhu Mineral Resources General Plan, Sichuan Province (2005-2010)
After Sichuan Province Geological Exploration and Development Bureau (April, 2014), Geochemical Exploration Brigade

terrain, several minor normal faults have also been encountered in the underground workings at various elevations in the past with no significant impact on the mining operations.

While no NI 43-101 or JORC compliant Mineral Resources have been confirmed on the FengTai property to the northwest of Cheng Qiang Yan, the phosphorite bed being mined on the Longman property adjacent to the south west and the upper phosphorite mineralization on the Cheng Qiang Yan property are projected to plunge onto the southeastern- most portion of the FengTai property.

The phosphorite bed for the Shi Sun Xi mining permit averages about 7.0 m in thickness with an average grade of about 29.6% P₂O₅. The phosphorite bed strikes generally about WSW-ENE and dips about 16-42° to the NNW.

The Mianzhu Norwest licences and permits are detailed in Tables 2 and 3, and Figure 1. The company also has a processing facility and offices at the Gongxing industrial zone in Mianzhu City.

TABLE 2.
SUMMARY OF ASSETS

Asset name / Country	AsiaPhos's Interest (%)	Development Status	Licence Expiry Date	Licence Area	Type of Mineral, Oil or Gas Deposit	Remarks
Exploration Area						
Cheng Qiang Yan / PRC**	100	Development	9 April 2018	1.54 km ²	Phosphate	Exploration rights
Shi Sun Xi / PRC	100	Development	16 June 2018	1.28 km ²	Phosphate	Exploration rights
FengTai**i	55	Exploration	12 December 2017	12.43 km ²	Barite (Phosphate)	Exploration rights Renewal application submitted
Mining Area						
Cheng Qiang Yan / PRC*	100	Development	28 February 2018	1.6491 km ²	Phosphate	Mining rights
Shi Sun Xi / PRC	100	Development	9 January 2020	2.02 km ²	Phosphate	Mining rights

* Official notice of Non-renewal received 9, Feb 2018.

** Permit renewal submitted.(see Asiaphos News release dates Jan 11, 2018)

The mining permit for Cheng Qiang Yan is about 1.53 km wide E-W and is about 1.10 km long N-S. The area of the property, specified by the issued mining permit is approximately 1.6491 km². Topographic elevations range from 2,240 to 2,570 m. The license C5100002011036120107965 is in force until 28 February, 2018 with its approved production rate of 50 kt/a.

The exploration permit for the Cheng Qiang Yan mine (Mine 1) (T51520080403010704) is valid until April 9, 2018. The dimensions of the exploration permit were increased in area from the original 0.55 km² to the current 1.54 km² at the request of the company, to cover a similar area as the existing Mining License. The company in 2016 applied for the conversion of the exploration permit to a mining permit with production of 300 kt/a. The requisite technical feasibility study and public consultations had been completed by 2017 and the submission is in the regulatory review process.

**TABLE 3.
PERMIT COORDINATES**

Mine	Land Status	Permit Name	Permit Number	1980 Xi'an Coordinate System		
				Easting	Northing	
1	Mining Right	Cheng Qiang Yan	C5100002011036120107965	35405919.56	3498691.77	
				35405094.56	3497441.76	
				35404169.56	3498016.76	
				35405069.55	3499316.77	
2	Exploration Right	Cheng Qiang Yan	T51520080403010704	Latitude	Longitude	
				31°36'24"	104°00'30"	
				31°35'45"	104°00'00"	
				31°36'03"	103°59'26"	
2	Mining Right	Shi Sun Xi	C5100002010016120054374	Easting	Northing	
				35412174.703	3500711.974	
				35412174.717	3503441.996	
				35412959.724	3503451.992	
2	Exploration Right	Shi Sun Xi	T51520080603010707	Inflexion No.	Longitude	Latitude
				1	104°04'27"	31°39'00"
				2	104°04'57"	31°39'00"
				3	104°04'57"	31°38'45"
2	Exploration Right	Shi Sun Xi	T51520080603010707	4	104°05'12"	31°38'45"
				5	104°05'12"	31°37'45"
				6	104°04'57"	31°37'45"
				7	104°04'57"	31°38'30"
2	Exploration Right	Shi Sun Xi	T51520080603010707	8	104°04'42"	31°38'30"
				9	104°04'42"	31°38'45"
				10	104°04'27"	31°38'45"
				10	104°04'27"	31°38'45"
3	Exploration Right*	FengTai	T51120080403005349	Inflexion No.	Latitude	Longitude
				1	103°58'57"	31°40'00"
				2	104°00'30"	31°40'00"
				3	104°00'30"	31°38'45"
				4	103°59'57"	31°38'45"
				5	103°59'57"	31°37'00"
				6	103°59'42"	31°37'00"
				7	103°59'42"	31°37'15"
				8	103°59'12"	31°37'15"
				9	103°59'12"	31°37'30"
				10	103°58'42"	31°37'30"
				11	103°58'42"	31°37'00"
				12	103°58'27"	31°37'00"
				13	103°58'27"	31°36'45"
				14	103°57'42"	31°36'45"
				15	103°57'42"	31°37'15"
				16	103°57'57"	31°37'15"
				17	103°57'57"	31°37'30"
				18	103°58'12"	31°37'30"
				19	103°58'12"	31°37'45"
20	103°58'57"	31°37'45"				

*currently expired, application for renewal pending.

WGM understands that on February 9, 2018, the company was officially informed of the Non-renewal of its application for renewal of the mining permit for Mine 1 because its operation is deemed harmful to the environment of the Panda Reserve. The renewal status of the other permits is now also in doubt, the company has received no notice as to any changes in their current status.

The existing mining permit for Shi Sun Xi (Figure 3) is about 0.76 km wide E-W and is about 2.74 km long N-S. The area of the property, specified by the issued mining permit is approximately 2.0237 km². The mineable depth approved with the new permit is between the elevation of 2,420 m and 1,600 m topographic elevations. The mining permit license C5100002010016120054374 granted January 22, 2010 (and re-approved in March 2011) is in force until January 9, 2020 with an approved production rate of 200 kt/a.

The current exploration permit for Shi Sun Xi, is valid until 16, June 2018 and encompasses an area of approximately 1.28 km². The company plans to submit an application for renewal.

Mianzhu Norwest has 100% ownership of the property rights for Mines 1 and 2. Pursuant to the restructuring arrangement dated 6 July 2015, and receipt of stock exchange approval for related items 27 July 2015, AsiaPhos now has 55% ownership of the FengTai exploration property.

4.3 ENVIRONMENTAL AND REHABILITATION

Mianzhu Norwest has indicated that it is currently in compliance with all applicable local operating requirements and regulations. These include but are not limited to one time purchase fees for the lands for the processing facilities, exploration and mining licence renewal and applications fees and environmental and closure (abandonment) costs. The company has installed waste water treatment facilities at the mine sites. The company holds its required local Mine safety permits valid until 2018. As part of its application for the conversion of the Mine 1 exploration permit to a mining permit and increased production the feasibility study prepared by 四川省有色科技集团有限责任公司" (Sichuan Non-Ferrous Technology), also included an environmental assessment report. In compliance with the draft report recommendations, AsiaPhos has undertaken additional site works to manage and monitor waste rock and to upgrade the current surface drainage systems in preparation for increased mining throughput. Heavier than normal rains in 2017 prevented road access to the site since June 2017. Remedial water and environmental work orders by the government as a result of the rains, requires an approval before mining can restart. Road access remains restricted and has delayed compliance.

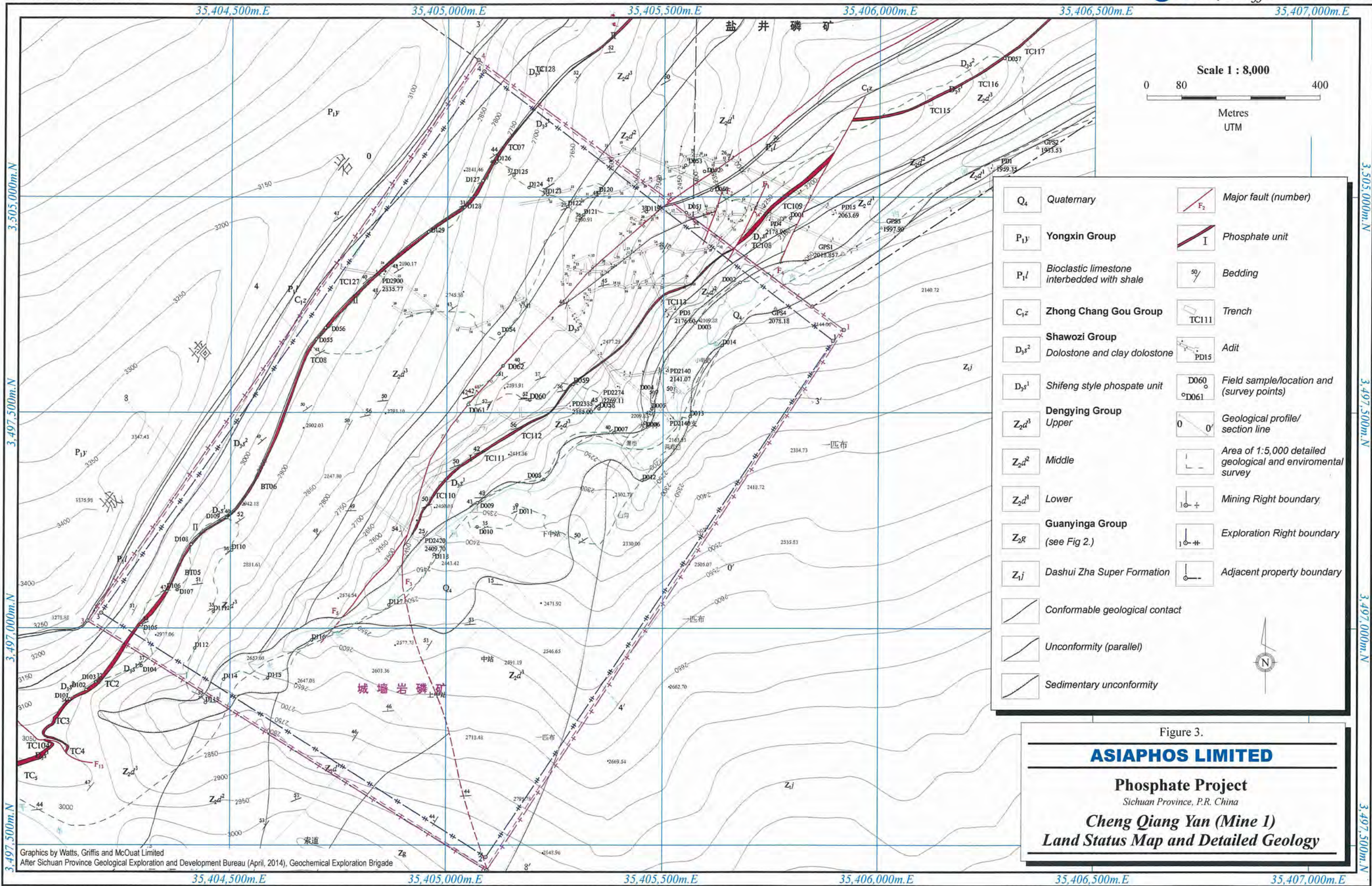


Figure 3.
ASIAPHOS LIMITED
 Phosphate Project
 Sichuan Province, P.R. China
Cheng Qiang Yan (Mine 1)
Land Status Map and Detailed Geology

Graphics by Watts, Griffis and McOuat Limited
 After Sichuan Province Geological Exploration and Development Bureau (April, 2014), Geochemical Exploration Brigade

The company also provides monetary reimbursement for a timberland compensation and forest recovery fund, bi-yearly and has set aside provisions for rehabilitation and reforestation upon mine closure. The company has also budgeted for the improvement and maintenance of access roads (in conjunction with its neighbouring operations).

4.4 RISK FACTORS

Because of the steep terrain and tectonic activity, this area is prone to landslides and earthquakes, the most recent one affecting this area being the 2008 Wenchuan earthquake. Based on the recorded seismic history in the area along with the geologic features and structures, it is expected that earthquakes will continue in the future. The intensity of major earthquakes could again reach a Mercalli intensity VIII (equivalent to Richter scale between 6 and 7), and mining construction as well as other projects should be planned and designed accordingly.

Further to the press releases by AsiaPhos on February 9, 2018 reporting the Non-renewal of the mining permit for Mine 1 because it is an area designated for Panda Reserve, and November 24, 2017 regarding request for a signed undertaking to withdraw from Shi Sun Xi and Fengtai. As of the date of this report, no formal decisions have been received by AsiaPhos regarding FengTai and Mine 2.

The steep terrain also leads to periodic access interruptions due to inclement or hazardous weather conditions that can cause flooding, mudslides and landslides. Therefore, in the winter the site operations are generally suspended from late December to mid-March. Inclement weather at other times may delay access to the property if roads become washed out due to heavy rains.

Most of the exploration, development work and mining work are currently performed by contract labour. Current labour market conditions may result in higher labour cost and as the company implements production improvements and adopts international mining practices some of the work may shift from contract to in-house labour. This may lead to some temporary work disruption during the transition period.

5. ACCESS, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 ACCESS

Mianzhu Norwest's mining operations and Mines are located about 45 km northwest (straight-line distance at 330°) from downtown Mianzhu City. It is approximately 40 km by road from Mianzhu Norwest's new downstream processing facility located in Gongxing Town Mianzhu City), to the Cheng Qiang Yan property and 42 km to Shi Sun Xi. The downstream processing facility ("plant") is very near the start of the Mian Yuan River canyon that leads to the Mines. The Mian-Mao Highway provides the main access from Mianzhu Norwest's Plant site via Hanwang Town to Qing Ping Town a distance of approximately 20 km. From there local access roads go further up the valley to access local communities and various mining operations. The final section is scheduled to connect with Mao County further to the Northwest of the mines and once completed is expected to improve local access. Unimproved haul roads leading from the local access road for 3 km and 2 km respectively to provide access to Mine 1 and 2.

Practically the entire length of the road from Mianzhu Norwest's Plant site to Mianzhu Norwest's Mines, has now been reconstructed to repair the damages caused by the earthquake and strong aftershocks. At the time of the WGM site visit in October 2015 major reconstruction work on the haulage road from the processing plant to Qing Ping Town paved and widened the road to two lanes throughout most of the distance, with single lane travel restricted only at certain narrower corners. The new highway includes tunnels and bridges and is built at a higher elevation to avoid flooding damage. Construction has progressed well and has now advanced past Qing Ping Town to the current mine access roads. Based on description provided by Mine Manager, Mr. Luo, as well as WGM's observation during visit in November 2017, the highway section from Hanwang Town to Qing Ping Town is fully in use, and the section from Qing Ping Town to both mines is under reconstruction to allow minimum access due to recent flooding in the valley.

WGM understands that the Deyang-Hanwang rail line (762 mm rail gage) is operational, providing the possibility of rail-freighting phosphate rock and phosphate-derived manufactured products to distant locations. Apparently new stations were built and the old destroyed rail station and rail yards in Hanwang Town were turned into a memorial park to the Wenchuan Earthquake.

5.2 CLIMATE

This area is strongly divided by topographic features which affect the local micro-climates in any given area. In the western part of the area, which includes the Mianzhu Norwest Mines, the climate is a medium and alpine humid/cold climate. The annual precipitation averages about 1,050 mm. The months from July to September are considered the rainy season (59% to 84% of annual average), and from November to February is the snow and frost season. The maximum recorded 24-hour rainfall event is about 255 mm. The highest temperature is 36°C (July) and the lowest temperature is -10°C (January). There are large diurnal temperature differences. The average annual evaporation rate is between 900 and 1,050 mm per year at the Mianzhu Weather Station. Hanwang Town (elevation ~700 m) sits in a subtropical humid climate zone and has a continental monsoon climate, which means no extreme temperatures in summer and winter. The average annual temperature is 15.7°C and the annual rainfall is about 1,053 mm.

5.3 LOCAL RESOURCES AND INFRASTRUCTURE

The entire area of Mianzhu City has been rebuilt as part of the massive reconstruction efforts to repair damages caused by the Wenchuan Earthquake. Complete towns and villages have been relocated or rebuilt within the confines of Mianzhu City. Entire industries have also been relocated. The transformation has been remarkable considering that at the time of the initial site visit in 2010, the area around Hanwang Town resembled a single extremely large construction site. Mianzhu Norwest's processing facility damaged during the Wenchuan Earthquake and has now been completely rebuilt at its new location in the new Gongxing industrial zone approximately 3 km to the northeast in Mianzhu City.

One site contains all the operations from receiving the rock from the mine to collection and production and storage of the P₄. The Plant includes crushing and screening, drying, mine rock storage and reclaim, two 10,000 tpa P₄ furnaces and storage facilities. The Plant includes gas scrubbers and water treatment facilities to better control environmental issues. Rock from both the Mine 1 operations and Mine 2 development work was being stockpiled on the site, crushed, selected high grades were fed to the furnaces and low grades were sold to other factories. The quality of construction at the Plant location, the site layout with more extensive gas scrubbing, and water containment and treatment has proven that the Plant provides Mianzhu Norwest with a substantial improvement in their operation and better control of any environmental impacts.

The original site has been reclaimed and turned over to the local government. The new site is located near a cement plant that takes the furnace slag and near a major power substation that supplies power for the site and electric arc furnaces.

The second site, separated by a public access road, contains all the operations associated with the STPP plant along with the product packaging, storage and handling facilities. At the time of the site visit in November 2017, the STPP plant was not operating. It was explained that production had been halted due to low product prices. The plant remains in good repair and can be restarted when product prices improve.

5.4 PHYSIOGRAPHY

The immediate area of the Mines is located in the district of Mianzhu City near the regional junction of forests in the alpine zone. The topography is extremely rugged with steep mountains, with some valleys/canyons, with vegetation cover. The Wenchuan Earthquake and strong aftershocks caused numerous large-scale landslides and slope failures which removed much of the slope vegetation along the access road from Qing Ping Town to the deposits. The overall trend of the mountains, is generally southwest to northeast. The terrain is defined as steeply sloping with multiple scree (loose rock) slopes and inherent instability from slopes close to failure. In addition to steep bare rock at the surface, the remaining parts of the vegetation are intact. The entire area is too steep to support any farming or animal husbandry industries. The chief employment in the area between Hanwang Town and Mianzhu Norwest's Mines is centered on state-run and private phosphate mining as well as a state-supported/directed timber industry. There are some small areas between Qing Ping Town and Gongxing Industrial zone that appear to support small familial gardening/farming.

6. HISTORY

In the mid 1960s, the Secondary Regional Geological Survey Team from Sichuan Bureau of Geological conducted a regional survey in the area. In 1970, they submitted 1:200,000 report titled “*Regional Geological Survey Report of P.R.C-Mianyang Region*”.

In 1968, the #101 Geological Team from the Sichuan Bureau of Geology conducted a 1:50,000 traverse geological survey in this region and collected some information about the distribution of the outcropped phosphorite ledge (“bed”) along with the attitude and the thickness of the bed.

From 1990 to 1994, the Chemical Prospecting Team from Sichuan Bureau of Geology and Mineral Resources carried out 1:50,000 regional survey in this region and submitted a report in 1995 entitled the “*Specification of Geological Map in P.R.C. Qing Ping Region*”.

At Shi Sun Xi in 1992, crews (affiliation unknown) constructed a mining adit at the upper part of the deposit. However, the operation was closed in 2000 due to consistently poor production and unsatisfactory profit caused by a poor adit location and design. Anecdotal evidence indicates that an open-pit mining operation was operating during this period.

Before foreign investment was introduced (Mianzhu Norwest), two mining adits were constructed at elevations 1841 m and 1872 m near the lower part of the deposit in 2001 and 2002, but they were abandoned because mineralization was not encountered at the expected locations.

The school-run Cheng Qiang Yan Phosphate Mine in Mianzhu City, was administratively owned by the Sichuan Mianzhu School-Run Enterprise Group Company Co. Ltd., a group-owned enterprise founded in 1994. It has been reported that the mine produced 150,000 tons of mineralized rock between 1994 and 1999 but the actual boundaries of the property are unknown. Anecdotal evidence indicates that an open-pit mine was operating during this period.

In 1996, Sichuan Institute of Chemical Engineering and Geological Exploration conducted a geological survey at Zai Ping Phosphorite Mine, which neighbours the Cheng Qiang Yan mine to the west. Subsequently, the Institute submitted the report entitled “*Census Survey of Geological Report of Zai Ping Phosphorite Mine in Mianzhu County, Sichuan Province*”.

In 1997, Sichuan Institute of Chemical Engineering and Geological Exploration conducted a geological survey of the Cheng Qiang Yan Mine and submitted a report entitled “*Census Survey of Geological Report for Jia Pi Gou Ore Block of Chang He Ba Phosphorite Mine in Mianzhu City, Sichuan Province*”.

In 1998, Sichuan Institute of Chemical Engineering and Geological Exploration conducted a geological survey of the Cheng Qiang Yan Mine and submitted a report entitled “*Census Survey of Geological Report for Cheng Qiang Yan Phosphate Mine at Qing Ping Town in Mianzhu City, Sichuan Province*”.

In 2002, operations of the mine were acquired by Mianzhu Norwest. From 2002 until the Wenchuan Earthquake, Cheng Qiang Yan produced and shipped approximately 379,000 tonnes of phosphate rock.

Although the property has been owned by Mianzhu since 2002, WGM has included all of the exploration work up until the time of the Wenchuan earthquake in 2008 in the history section since it is only after that time that efforts were made to advance the reporting for the project to international standards.

In 2005, with the hope to develop the local economy to effectively take advantage of the resources, increase mining capacity, and profit margins, Mianzhu Norwest (Shi Sun Xi) contracted the Coal Design & Research Institute of Sichuan Province to make a preliminary design for an increase in the production capacity from 100 kt/a to 200 kt/a.

Under the contractual commitment, the engineering technical personnel of the Institute together with their counterparts in Mianzhu Norwest in December 2005 developed the mine design criteria and operational parameters that resulted in a series of reports being issued. Based on this integrated work the following reports were issued:

- “*Mineral Resources Development and Utilization Solution for Sichuan Mianzhu Norwest Phosphate Chemical Company Ltd (Shi Sun Xi Phosphate Mine)*” submitted by Coal Design & Research Institute of Sichuan Province in November, 2005. This report generally described the phosphate mineralization and location based on the early exploration work and Mianzhu Norwest’s exploitation activities at that time;
- “*Sichuan Mianzhu Norwest Phosphate Chemical Company Ltd. (Shi Sun Xi Phosphate Mine) Initial Design of Expansion Program*” submitted by Sichuan Coal Design and Research Institute in February 2006. This was a mine redesign study to increase production to 200 kt/a; and,
- “*Sichuan Mianzhu Norwest Phosphate Chemical Company Ltd. (Shi Sun Xi Phosphate Mine) Initial Design of Expansion Program Safety Procedures*” submitted by Sichuan Coal Design and Research Institute in February 2006. This was the safety procedures for the expansion program, and it was introduced as a standalone report.

Arising from a restructuring exercise completed in 2013, AsiaPhos Limited became the ultimate holding company of Mianzhu Norwest.

Local exploration at the FengTai property was conducted on the property between 2008 and 2013 on behalf of the owner by the Hydrologic Engineering Brigade of Sichuan Metallurgic Geology Bureau who completed reconnaissance and prospecting programs with a total expenditure of 0.7298 million Yuan. This included 34.5 km of geological mapping, 3,266 m of trenching and analyses of 170 samples with Barite being the main target. No analytical results were reported.

In July 2015, the acquisition of the FengTai Property was completed and exploration for phosphate has commenced.

7. GEOLOGICAL SETTING AND MINERALIZATION

7.1 REGIONAL, LOCAL AND PROPERTY GEOLOGY

The outcrops in the area of Mianzhu Norwest's Mines, Cheng Qiang Yan and Shi Sun Xi, and the FengTai property include Upper Sinian strata, local Cambrian and Silurian rocks in the northwest and Upper Devonian strata, Lower Carboniferous strata, Lower Permian strata and a small amount of Quaternary system. In general, the geologic structures strike NE to SW and dip to North and Northwest at 42°-58°.

This region is located in the middle part of the discordogenic faults at Longmen Shan Thrust Belt and earthquakes frequently occur with some in the strong to severe categories. Most of the stronger historical shocks in Sichuan Province were almost all located to the west of 104°E longitude, and this phosphorite-containing region lies right on this 104°E longitude line. This line also is generally located in the belt where the thickness of the earth's crust is rapidly changing. The Longmen Shan area marks the (rapid) transition from thick crust (60 km+) beneath the Tibetan Plateau (to the west) to continental crust with normal thickness (around 40 km) beneath the Sichuan Basin. This area is also the boundary point between Caledonian-age folding (Silurian Period) and Songpan-Ganzi geosynclines fold belt of Indosinian orogeny of the early Mesozoic Era (Late Triassic Period).

The Mianzhu Norwest's Mines, Cheng Qiang Yan and Shi Sun Xi, as well as the south eastern portion of the FengTai exploration property are located between the faults F1 and F2, which are the principal defining regional lineaments. This area is also very near the juncture of the Yangtzi meta-platform, the Longmen Shan-Da Ba Shan platform marginal depression, the fold belt of Longmen Shan, and the north-west wing of a large double-plunging anticline. Geologically, this area of Sichuan Province has been in the process of deformation for at least the last 600 million years (Figure 4).

7.2 GENERAL STRATIGRAPHY

The general stratigraphy of the area is presented in Table 4. Stratigraphic records for the Mines, Cheng Qiang Yan and Shi Sun Xi, and eastern portions of the FengTai property are very similar although there is still, seemingly, some confusion on the part of the local geological brigades as to the exact age of the phosphorite bed of interest on the two properties. Although the geological age for the phosphorite bed on the two properties is currently judged to be of Upper Devonian age, historically the bed has also been assigned to the Lower Cambrian and/or Upper Sinian (Pre-Cambrian) ages. Each of these assignments was complete with supporting geologic descriptions of the relevant strata.

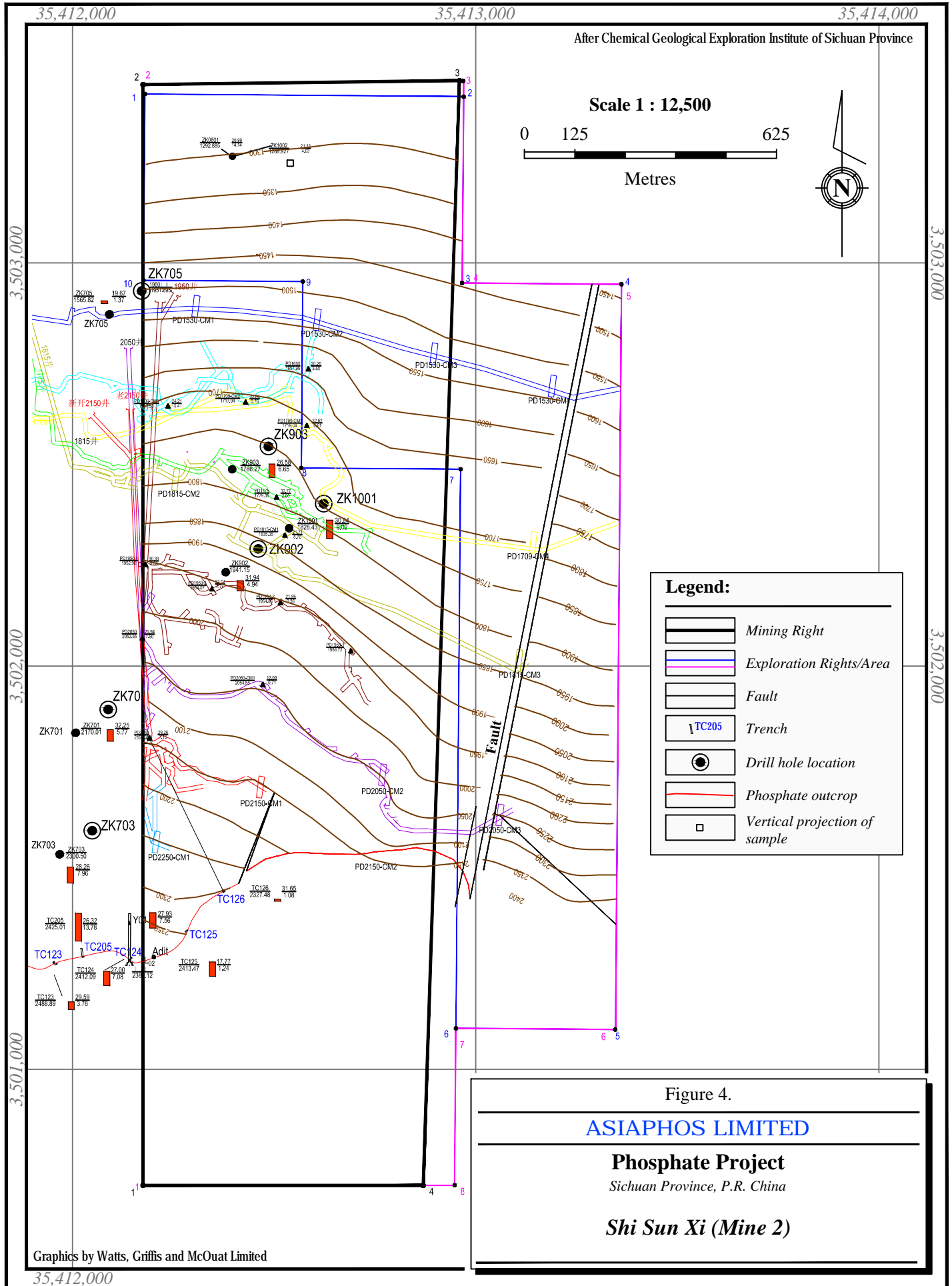


TABLE 4.
"SHI FANG" TYPE PHOSPHORITE DEPOSIT STRATIGRAPHIC COLUMN
SICHUAN PROVINCE, PEOPLES REPUBLIC OF CHINA

Era	System	Series	Group	Symbol	Thickness (m)	Rock and fossil description		
Cenozoic	Quaternary	Holocence		Q	0-41	Overburden, soil, sand gravel		
Mesozoic	Triassic	Upper	Xu Jia He	T ₃	114.8	Grey, greyish black, thin bedding of fine grained siltstone, sandstone, mudstone and carbonaceous shale		
		Middle	Tian Jing Shan + Lei Kou Po	T ₂	52 – 230	Yellowish grey to light grey, medium to thick bedding of very fine grained dolomite with muddy and calcareous texture, interbedded with yellowish grey siltstone		
		Lower	Jia Ling Jiang + Fei Xian Guan	T ₁	100 – 282	Purplish red thin to medium layered mudstone, siltstone, interbedded with light grey thin limestone		
Paleozoic	Permian	Upper	Chang Xing + Wu Jia Ping	P ₂	130-245.7	Grey to greyish black, thick layered limestone. Middle and lower portion is cherty limestone and interbedded with carbonaceous shale. Contains fossil: Synamulorla cf. cndiea Wangen		
					150-125	Dark grey, medium to thick layered limestone, contains cherty. Purplish red iron containing kaolinic mudstone and coal mineralization at bottom		
		Lower	Mao Kou + Qi Xia + Liang Shan	P ₁	160-200	Grey to dark grey, thick layered and granular shape bioclastic limestone interbedded with shale. Contains fossil: Neoschwagrlna sp RerbeeRina		
					150-250	Light yellowish grey, dark grey, thick layered and granular bioclastic limestone		
	Carboniferous	Lower	Yan Guan	C _{1y}	5.19-55.55	Yellowish grey, greyish white, thin to thick layered limestone. Fine to coarse grained dolomite at lower portion, Dark red conglomerates at bottom.		
						C _{iz} *	Bioclasticmicrocrystalline limestone with siltstone and mudstone bands	
						D ₃ *	Undifferentiated	
	Devonian	Upper	Sha Wo Zi	D ₃ S ²	24.52-360.5	Grey to dark grey, thick layered fine grained dolomite. Interbedded with dark yellow, dark red bluish grey clay dolomite. Sandy dolomite at bottom. Contains fossil: Cyrtospriper sinesis Grabau		
					D ₃ S ¹	0-75.3	Phosphate mineralization: Hydrous mica, claystone from top to bottom, phosphate containing kaolinite claystone, Parathion aluminum strontium mineralization, and phosphate rock. Contains fossil: Bcthrolepis sp and etc.	
		Silurian**					Undifferentiated	
	Cambrian**					Undifferentiated		
Neoproterozoic	Sinian	Upper	Deng Ying	Zdn	282.38-710.49	Greyish white, light grey, granular shape dolomite. Phosphate mineralization filled cracks at upper portion. Light grey thick layer dolomite at lower portion. Contains fossil: Renaleis sp, Praesolenopora minutus, Balics sp		
					Guan Yi	Zdg	480.11-580.20	Grey to dark grey, thick bedding, siliceous dolomite. Contains siliceous rock, top portion is shattered. Phosphate containing layer is on upper portion, consists of black shale, phosphate rock, siliceous phosphate rock, siliceous rock with phosphate content. Lower portion is purplish red thin layered shale, and greyish white medium to thick layered quartz sandstone interbedded with quartz siltstone. 144.56 m thick.
					Cheng Jiang Formation			

Note: after Sichuan Institute of Chemical Engineering and Geological Exploration

* present on Shi Sun Xi only

** Present on FengTai property only

The most recent geological reports available to WGM acknowledge the different interpretations, but have elected to maintain the Devonian age interpretation. The reports do however recognize that the phosphate beds are associated with the major unconformity, which place the Upper Devonian in contact with the Lower Cambrian and/or Upper Sinian (Pre-Cambrian). Locally on a detailed scale a number of units or sub units have also been identified positioned between the Devonian and Sinian.

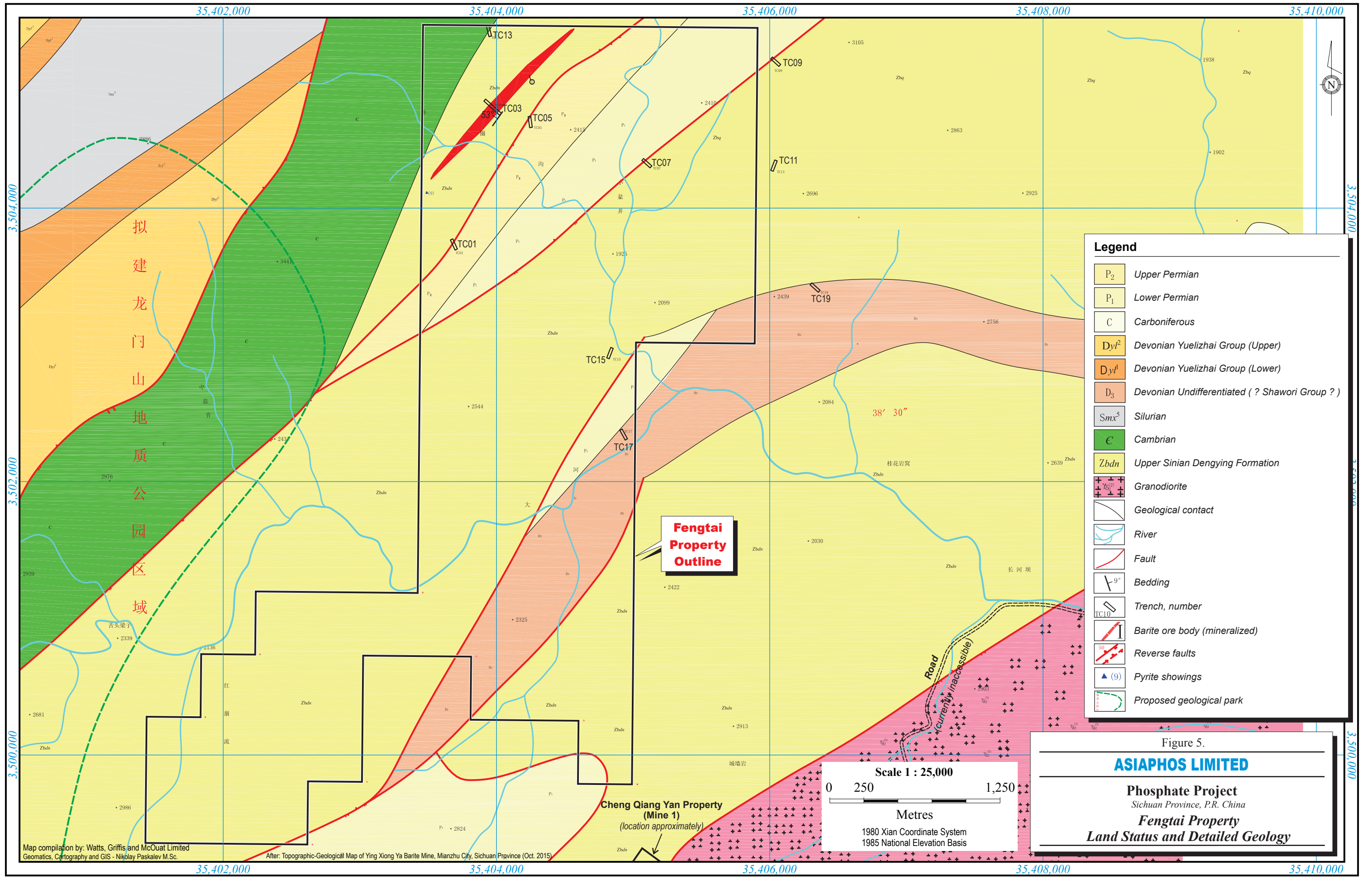
Although there is only one minable phosphorite bed in Mianzhu Norwest's area of interest and it occurs on Cheng Qiang Yan and Shi Sun Xi, properties it has also been projected to underly the southern portion of the FengTai property (Figure 5). Local faulting has repeated the unit on the Cheng Qiang Yan property and other repetitions are expected as more detailed geological mapping on nearby properties is completed.

Sichuan Institute of Chemical Engineering and Geological Exploration has placed this phosphorite bed in the Devonian Period of the geologic time scale and have assigned the bed a specific "deposit type". The deposit type is known as the "Shi Fang" type. As explained to WGM, the phosphorite bed is actually from the Lower Cambrian Period and was deposited originally as the Meishucun Formation as were most other phosphorite beds on other parts of the Mianzhu anticline area. There was a depositional hiatus from the Lower Cambrian to the Devonian Period at which time this phosphorite bed, in preference to others in the area, was severely weathered which created some internal structural changes and enrichment in P_2O_5 content. The internal structure changes and increases in P_2O_5 content are documentable. WGM questions whether this bed should be assigned to the Devonian Period or whether it should be more correctly assigned to the Lower Cambrian. This discussion has no relevance to the "resource statements" made herein. This discussion is extended in the geology sections of this report. However, there are no documentable traces of evidence, in readily accessible western literature, supporting a period of phosphogenesis and accumulation in the Devonian Period in Asia and very few from the rest of the world.

Given all of the above, this Technical Report will use the Upper Devonian Period age assignment for this phosphorite bed as it is currently accepted locally (see Table 4).

7.3 STRATIGRAPHY OF CHENG QIANG YAN

At Cheng Qiang Yan, the major outcrops on the property, and described in detail, are Upper Sinian, Upper Devonian and a small amount of Quaternary strata. The descriptions presented below are as reported in previous bureau reports in ascending order from oldest to youngest. Recent more detailed geological mapping has provided more details for existing units and identified some additional local sub units on either side of the unconformity:



- Legend**
- P₂ Upper Permian
 - P₁ Lower Permian
 - C Carboniferous
 - D_{yl²} Devonian Yuelizhai Group (Upper)
 - D_{yl¹} Devonian Yuelizhai Group (Lower)
 - D₃ Devonian Undifferentiated (? Shawori Group ?)
 - Sm^s Silurian
 - C Cambrian
 - Zbdn Upper Sinian Dengying Formation
 - Granodiorite
 - Geological contact
 - River
 - Fault
 - Bedding
 - Trench, number
 - Barite ore body (mineralized)
 - Reverse faults
 - Pyrite showings
 - Proposed geological park

Figure 5.
ASIAPHOS LIMITED
 Phosphate Project
 Sichuan Province, P.R. China
Fengtai Property
 Land Status and Detailed Geology

Scale 1 : 25,000
 0 250 1,250
 Metres
 1980 Xian Coordinate System
 1985 National Elevation Basis

拟建龙门山地质公园区域

Fengtai
Property
Outline

Cheng Qiang Yan Property
 (Mine 1)
 (location approximately)

Road
 (currently inaccessible)

Map compilation by: Watts, Griffis and McOuat Limited
 Geomatics, Cartography and GIS - Nikolay Paskalev M.Sc.
 After: Topographic-Geological Map of Ying Xiong Ya Barite Mine, Mianzhu City, Sichuan Province (Oct. 2015)

7.3.1 UPPER SINIAN GUAN YIN YA GROUP (Zbg)

The lower portion is a gray to purplish-red and layered pebbly sandstone with medium thickness. The bottom is a granitic conglomerate. The upper portion is a purplish-red and layered metamorphosed packs and (fine-grained sandstone) with thin to medium thickness. This is interbedded with muddy siltite and with microlite dolostone and calcite dolostone. The thickness of this outcrop in the property area is 120 to 140 m. The bottom of this unit is in unconformable contact with stratum below, which is “two-mica” granite.

7.3.2 UPPER SINIAN DENG YING GROUP (Zbdn)

This unit is distributed over most of the area. The upper portion of this unit is grayish white to light grey dolostone with granular particles. The upper portion contains phosphate infilling of karstic cavities; lower portion is light grey thick layered dolostone. The thickness ranges from 332 to 710 m. In general, this unit is composed of thick-layered and agglomerated cryptocrystalline dolostone with colors ranging from hoary to grey and with a fossil karst erosion surface the top appearing at to be a piedmont.

Based on rock characteristics, the Deng Ying group can be divided into 3 general sequences, and the first sequence can also be divided into 3 layers. These same sequences can be traced far to the east – at least to the Three Gorges area of Hubei Province and beyond.

7.3.3 DENG YING GROUP 1ST SEQUENCE (Zbdn₁)

1st layer (Zbdn₁¹): grey to light grey dolomite with elegant trace, top is siliceous dolomite. Conformity contact with Guan Yin Ya group below. Thickness: 220 to 250 m.

2nd layer (Zbdn₁²): this layer contains phosphate mineralization; it is sandy mudstone or muddy fine grained sandstone with phosphate content, interbedded with grey to dark grey lens shape or granular dolostone. An area with high P₂O₅ was formerly defined as the Cheng Qiang Yan deposit. This was one of the former age assignments for the phosphorite bed.

3rd layer (Zbdn₁³): grey to light color dolomite with elegant trace, lower portion is siliceous dolomite. Contact with 2nd layer is siliceous dolomite. Thickness is 450 to 500 m, average around 480 m.

7.3.4 DENG YING GROUP 2ND SEQUENCE (Zbdn₂)

This is located at Northwest part of the property. Lower portion is grey thin layered marlite and purplish-red shale with collapse structures (karstic) locally. The upper portion is grayish-black, thin to medium thick microlitic dolomite and dolomitic limestone interbedded with black shale. The thickness is over 50 m.

7.3.5 DENG YING GROUP 3RD SEQUENCE (Zbdn₃)

Located at Northwest of the property. Light grey to dark grey color thick granular shape dolomite. The middle and lower portion is siliceous dolomite with a thickness of 100 to 120 m.

7.3.6 UPPER DEVONIAN SHAWOZI GROUP (D₃S)

Located in the northwest of the property.

Lower Sequence (D₃S¹)

This sequence which contains the phosphate mineralization is the current age assignment for the Cheng Qiang Yan phosphorite bed. The strata from the top to bottom, is clay layer, clay layer with phosphate content, and siliceous rock. There is granular phosphorite locally and is generally described as being composed of the grey or dark carbon hydromica claystone, phosphatic clays, siliceous phosphorite and phosphorite. It has a thickness from 0 to 26.19 m. Where the claystone is exposed at the surface, there is a risk of serious weathering. In addition, the claystone is vulnerable to being argillized, while svanbergite (strontium aluminum phosphate sulphate hydroxide) and phosphorite, on the other hand, are stable in thickness, hard in texture and good in stability.

The phosphorite bed is located at the top of the “speckle” dolostone fossil karst base of erosion of the Upper Sinian series Deng Ying Group, and below the Upper Devonian Series Shawozi Group dolomiticite.

Within the mining and exploration license areas of the Cheng Qiang Yan deposit, the thickness of the phosphorite bed ranges from 0.7 to 13.8 m with an average thickness 5.0 m. The P₂O₅ content of the bed ranges from 18.5% to 36.4% with an average of 28.7% P₂O₅. The strike of the phosphorite bed is generally NE-SW and the dip of the bed is about 50° in a northwesterly direction. The contact interface of the phosphorite and the bounding wall rock is clear and abrupt, both at the hanging wall and the footwall.

Upper Sequence (D₃S²)

Dolomite. The lower portion is a sandy-dolomite; the middle portion is yellowish-grey, grey, reddish fine to mid-sized granular dolomite, also interbedded with grey to light-bluish grey, thin layered clay and muddy dolomite. The upper portion is grey, light grey thin to thick microlite to crystallite dolomite, with visible black organic traces locally. The thickness is over 280 m with no visible upper limit. The Shawozi Group (D₃S²) contains abundant solution phenomena including crags and crevices that exemplify karstic terrane. The Upper Member is primarily composed of fine and medium-to-thick mesocrystalline dolostone of grey or dark grey color; this stratum is distributed at the top of the Cheng Qiang Yan mountain. According to the drilling information from adjacent properties, it is composed chiefly of solution

phenomena crags and crevices. This stratum developed these karstic features due to strong weathering during past geologic times.

7.3.7 QUATERNARY (Q)

This is scattered on the property; mainly as overburden and in valley-fill sediments. It consists primarily of poorly weathered dolomite and limestone fragments as well as clay; up to 30 m thick.

7.4 STRATIGRAPHY OF SHI SUN XI

At Shi Sun Xi, the major outcrops on the property, and described in detail, are Upper Sinian, Upper Devonian, Lower Carboniferous, Permian and a limited amount of Quaternary strata. The descriptions below are in ascending order from oldest to youngest:

7.4.1 UPPER SINIAN DENG YING GROUP (Zdn)

Upper-Mid Deng Ying Group (Zdn₃) - solution phenomena fracture features (Karst)

It is composed of thick-layered agglomerated cryptocrystalline dolostone from hoary to grey colors with a fossil karst erosion surface top appearing at piedmont. The thickness of this unit is directly related to the erosional surface. This superficial weathering feature has developed during various geologic times. According to the drilling information from adjacent properties, the superficial erosion phenomena and fractures were developed at the elevations where groundwater intensely fluctuated during its geologic history. The base Zd dolostone is dense and brittle, with karstic joint fissures well developed. When encountered by mining operations, the developed fracture/fissure sections, make it possible for wall caving and minor slumps to occur. The top of this group of strata is bounded by an unconformity.

Shuijing Group (Z₃S² and Z₃S³)

Locally this Group occurs above the upper part of the Deng Ying Group has been subdivided into two additional members in this area, consisting of intercalated limestone and sericitic phyllite and siliceous bands and an upper massive dolomite with thin limestone and slate interbeds.

Upper Devonian System Lower Shawozi Group (D₃S¹) Containing Phosphorite Bed

This unit is composed of the grey or dark carbon hydromica claystone, phosphatic clay, siliceous phosphorite and phosphorite; composed of carbon hydromica claystone, phosphatic kaolinite claystone, svanbergite and brecciated phosphorite. Where the claystone is exposed at the surface, there is a risk of serious weathering. In addition, the claystone is vulnerable to be argillized; while svanbergite (strontium aluminum phosphate sulphate hydroxide) and phosphorite, on the other hand, is stable in thickness, hard in texture and good in stability. The

strike of the phosphorite bed is generally E-W and the dip of the bed is about 30° in a northerly direction.

Within the mining and exploration license areas of the Shi Sun Xi deposit, the thickness of the phosphorite bed ranges from 1.1 to 13.8 m with an average thickness 7.4 m. The P₂O₅ content of the bed ranges from 17.8% to 32.2% with an average of 29.6% P₂O₅. The strike of the phosphorite bed is generally E-W and the dip of the bed is about 30° to 40° in a northerly direction. The contact interface of the phosphorite and the bounding wall rock is clear and abrupt, both at the hanging wall and the footwall.

Upper Devonian System Upper Shawozi group (D₃S²) - Solution Phenomena Fractures (Karst)

This is composed of fine and medium-to-thick mesocrystalline dolostone of grey or dark grey color. This stratum is distributed in the middle of the property. The top of the Shawozi Group is marked as an unconformity.

Lower Carboniferous Yanguan Group () - Solution Phenomena Fracture (Karst)

This is distributed in the middle and the northwest corner of the property and found as conglomeratic dolostone, limestone, politic dolostone with its thickness of 23.44-153.04 m. Locally a basal unit C_{1z} is also exposed consisting of bioclastic microcrystalline limestone, siltstone and shale bands

Permian system (P_{1q+m}) - solution phenomena fracture (Karst)

This is distributed in the middle and southern part of the property and found as a thick layer of biocalcarenite with grayish black or dark grey color and has a thickness >193.06 m.

Lower Permian System Liangshan Group (P_{1l})

This is distributed in the middle and north-west corner of the property. It is an intertwined stratum with dark grey layered marlstone from thin to medium-thick and medium-thick layered dark claystone. It is held between the lentoid dark grey gravel biocalcarenite with a thickness of 16.60-18.70 m, with the stratum being stable and consistent.

7.4.2 QUATERNARY SYSTEM (Q)

The brecciated sedimentation is composed of yellow clay, clayey loam with gravels, and is 0-82.06 m in thickness and deposited at slight grade with the terrain and on both sides of the valley.

7.5 STRATIGRAPHY OF THE FENGTAI PROPERTY

The property is underlain by two stratigraphic sequences, to the northwest and the Longmen division in the southeast. These divisions are fault bounded.

7.5.1 MAERKANG DIVISION

Cambrian unit (C) is a dark carbonaceous silty unit interbedded with dark siliceous slate and 1-2 m thick layers of massive calcareous sandstone and carbonaceous slate.

Devonian and Silurian rocks are exposed in the extreme northwest to the northwest consisting primarily of interbedded phyllites, and limestones.

7.5.2 LONGMEN DIVISION

The Upper Sinian Deng Ying unit is the dominant group underlying the property and host infaulted wedges of Devonian and Permian rocks. It is composed primarily of dolomite with local siliceous units, arenaceous shales and possibly phosphorite. Granodiorite is present in the southeast.

The Devonian D3 unit occurs as a central fault bounded block and is for the most part undifferentiated consisting of limestone, sandstone and carbonaceous shale with phosphorite at the base.

7.6 STRATIGRAPHY OF THE PHOSPHORITE BED

Only a detailed description of the phosphorite bed at Shi Sun Xi (Coal Design & Research Institute of Sichuan Province—2006) has been presented for review for this Technical report. No similar description for Cheng Qiang Yan has been found in the review materials. However, since the phosphorite bed at both locations is geologically the same and of the same age, the description below can be applied, in general, to the bed at Cheng Qiang Yan which is only 8 km distant.

The phosphorite bed has a clear lithological zonation. From the bottom to top there is brecciated phosphorite, dense phosphorite, lutaceous phosphorite, svanbergite, siliceous phosphorite, and phosphatic claystone.

The phosphorite bed often leads to vertical zoning that is not complete, or is partially missing, due to the constraints of variability of the karst base (floor material) at the top of the underlying Deng Ying Group of strata. However the position is stable and gradation is in a normal sequence, as identified in regional comparisons.

The mineral combination mainly includes apatite, collophanite, svanbergite, kaolinite and hydro-mica among other minerals. However, from top to bottom the content of apatite and collophanite decreases in the phosphorite bed, while that of kaolinite and hydro-mica increases. The svanbergite is generally found in the central portion of the property. Phosphorite

claystone (brecciated) is formed due to a sharp increase of kaolinite and hydro-mica. A partial section of the bed appears as siliceous phosphorite.

The phosphorite bed is generally featured, by positive corpuscle-order gradation, a grain-size change from coarse to fine going from the bottom to the top except for the mixed order and sizes of brecciated phosphorite at the bottom of the sequence.

Physical conformation of the phosphorite bed is strictly controlled by the erosional surface of karstic topography at the base of the bed. Usually the upper contact is regular and even, while the lower contact is irregular. Typical of the "Shi Fang Type" of phosphorite deposit, the phosphorite bed is located in the space formed by the erosion process as a point of accumulation and the bed has transverse thickness variations. The erosional aspects of deposition has a certain character of its own as the accumulation of phosphorite develops along with erosion, and the phosphorite is accumulated in the lower part of the erosional topography as a bed. The phosphorite bed is derived from the weathered and reworked material from the Lower Cambrian Meishucun Formation.

The phosphorite bed at Cheng Qiang Yan is similar. There has been no reported phosphorite bed encountered on the FengTai property to date, and considering the paucity of exploration this is not unexpected.

7.7 GEOLOGICAL STRUCTURE

7.7.1 STRUCTURE OF CHENG QIANG YAN

The Cheng Qiang Yan property is situated in between two major, and regional, fault systems, faults F1 and F2. Most of the faults specifically on the property are reverse faults, typical of overthrust and compressional terrains, and were identified as F201, F202, F203 and F205 in the original mapping prior to 2010 and are actually a series of fault systems. More recent mapping has changed the nomenclature of some of these faults, however their position remains generally unchanged. The following description refers to the earlier nomenclature as following:

7.7.2 F205 NORMAL – STRIKE SLIP FAULT

It is near the western boundary of the property, starting from the Southwest corner and 860 m long. The fault is Visible in TC103. The strike of the fault system is generally N-S with a dip toward the west at 55°. This fault appears to have up faulted the phosphorite bed resulting in the second appearance of the phosphorite bed at a higher elevation.

7.7.3 F202 NORMAL FAULT

The fault is located in northeast of the property and is around 230 m long. The brecciation zone is about 0.8 m wide. The strike of this fault system is generally toward the west with an azimuth of 259° and dipping at 16° in an unspecified direction.

7.7.4 F201 REVERSE FAULT

The fault system is located in northeast of the site and is about 140 m long with a visible 0.3 m wide brecciation zone in TC102. Fault strikes NW with an azimuth of 316°, dipping at 34° in an unspecified direction. The throw is about 30 m and the heave is 40 m.

7.7.5 F203 REVERSE FAULT

This fault is located northeast of the property about 100 m away from F201 and is 120 m long. It strikes N and NE with the dip towards the N and NW and the dip angle, throw and heave are unknown.

F206 in previous reports was not found in this survey (mapping and sampling in the trench and tunnels), so it is not included.

The locations and altitudes of Fault 201, 202, 203 have been adjusted based on the updated information obtained in the latest survey (2009). In conclusion, the faults on the property generally strike NE to SW with a monoclinical structure and dip toward NW to N at 43 to 58°.

The strike of the phosphorite bed is generally NE-NW and the dip of the bed is about 50° in a northwesterly direction.

7.8 STRUCTURE OF SHI SUN XI

The Shi Sun Xi property contains only one described fault. The fault zone strikes from SW to NE and dips to the NW at an unknown angle. The fault does not interfere with possible mining operations under the existing mining permit but does influence the phosphorite stratum under the exploration license to the east of the mining permit.

The strike of the phosphorite bed is generally E-W and the dip of the bed is about 30° in a northerly direction.

7.9 STRUCTURE OF THE FENGTAI PROPERTY

The property is located within the east branch of the Maowen Fault, a north branch of Jiuding Mountain Fault. The fault follows the south side of Moutuo-Shilipu NE striking anticlinorium

and is considered a compressive twist fault dissecting the Sinian and Permian formations, striking 45° ~ 50° and dipping NW-NNW at an angle range of 50° ~ 80° . The Sinian dolostone shows a relative high degree of fragmentation. This major fault and structure and several subparallel minor faults dominate the area.

Jiuding Mountain Synclinorium is exposed in the northwest corner and consists of Silurian Maoxian Group and Devonian Yuelizhai Group. It is an isoclinal overturn synclinorium with the axis striking NE 40° ~ 50° , both south and north limbs dipping to NW 310° ~ 315° at an angle range of 40° ~ 48° for the south limb, an angle range of 42° ~ 78° for the north limb, the axial plane dipping to 315° at an angle of 70° .

7.10 SEISMICITY

The Longmen Shan marks the tectonic contact between the Sichuan Basin to the east and the mountains of western Sichuan and the eastern Tibetan plateau to the west. Marked by fast *P*-wave (“primary” wave) propagation to at least 250 km depth, the low-elevation and topographically flat Sichuan Basin appears to be a deeply-rooted, mechanically strong unit underlain by craton-like lithosphere that has resisted Mesozoic and Cenozoic deformations that affected the surrounding regions. The slow seismic wave propagation west of the Longmen Shan fault zone suggests that the mechanical strength is much lower here than beneath the Sichuan Basin. The recurring earthquakes reflect tectonic stresses resulting from the relative motion between these tectonic units. Geological structures along the Longmen Shan suggest a total displacements of tens of kilometres since the Late Cenozoic and GPS measurements constrain active rates at a few millimetre per year.

The tectonic evolution of the Longmen Shan is complex and still only moderately understood. The Longmen Shan marks not only the present boundary between the high topography of the Tibetan Plateau to the west and the relatively undeformed Sichuan Basin to the east, but this region also marks the limit of deformation during the Mesozoic Indosinian orogeny. During the Late Triassic to Early Jurassic, a sequence of continental margin sediments and flysch were highly deformed and thrust eastward onto the rocks of the Yangtze craton while the Sichuan Basin was accumulating clastic sediments as a fore deep basin (Indosinian orogeny). The structures of the Longmen Shan region primarily reflect this Mesozoic deformation; Cenozoic faults and folds tend to parallel and often reactivate Mesozoic structures. Cenozoic deformation in the Longmen Shan is difficult to constrain, but there is evidence for right-lateral strike-slip, thrusting, and normal faulting on several different structures. The fault that appears to have broken on the Wenchuan Earthquake is at or very near the boundary between the Precambrian rocks of the Pengguan Massif and the Mesozoic fore deep sediments of the Sichuan Basin. The fault has a history of mostly right-lateral strike-slip and a smaller amount of thrust motion.

The Longmen Shan marks the (rapid) transition from thick crust (60 km+) beneath the Tibetan Plateau to continental crust with normal thickness (around 40 km) beneath the Sichuan Basin.

The region is located in the middle part of the discordogenic fault at Longmen Shan, where earthquakes frequently occur and often very strongly. The strongest shocks to have ever occurred in Sichuan province were almost all located in the west of 104° east longitude, and this region lies right on this line. The borderline is generally located in the belt where the thickness of the earth's crust is changing as mentioned above. It is also the border point between Caledonian folding (Silurian Period) and the Mesozoic Songpan-Ganzi geosynclines fold belt in the Indosinian orogeny.

According to GB18306-2001 “China’s earthquake motion peak acceleration division map” (PRC “National Standard Amendment No.1”, June 11th, 2008), the earthquake motion peak acceleration in this region is 0.20g, the basic earthquake intensity is Mercalli VIII, the earthquake response spectrum eigenperiod is 0.35. According to the Sichuan Province tectonic system and earthquake distribution maps in 1980, Mianzhu County annals and the quartz mine ESR age results explored in the fault zone of this region confirm that this region is located in a later structured active belt, where minor shocks have frequently occurred during geologic times. It was recorded that there were more than 10 earthquakes that affected this region; such as on March 22, 1983, when an earthquake occurred in Qing Ping Town in Mianzhu City, the epicentre was located at 104°17'E longitude and 31°34'N latitude with a magnitude of 4.2. Fortunately it caused little damage due to its mild intensity. However, Qing Ping Town became a severely damaged area after the Wenchuan Earthquake. Most of the buildings were destroyed and other damage was devastating. Based on the recorded seismic history in the area along with the geologic features and structures, it is expected that earthquakes will continue in the future. The intensity of major earthquakes could again reach a Mercalli intensity VIII (equivalent to Richter scale between 6 and 7, and mining construction as well as other projects should be planned and designed accordingly.

As an added note, during the first site visit to Cheng Qiang Yan in late February 2010, an inspection of the “Level #15” drift was conducted by the WGM project team. While all surface facilities at the mine were destroyed, the underground workings on level #15 showed little impact from the Wenchuan Earthquake. Inspection of Levels #9 and #4 by other members of the Mianzhu Norwest mine operating personnel revealed that these underground operations were also minimally affected by the earthquake. This has been confirmed by recent visits and exploration, development and mining activities since that time.

7.11 MINERALIZATION

The phosphorite particles are mainly granular in shape but also arenaceous “through recrystallization” processes. While the phosphorite is mainly granular, there are visible “washing marks” (brecciation) at the base of the bed. The phosphorite mineral exists mainly of

argillaceous phosphorite, siliceous phosphorite, “dense” phosphorite and brecciated phosphorite. The phosphorite occurs in brecciated structure, secondarily in arenaceous form with individual particles and “dense” structure. The latter is developed as recrystallized and metasomatic in texture. The phosphorite is chiefly “lumpy” in structure and occasionally there are scour marks found at the base of the bed.

The phosphorite bed mainly includes four natural types, which are lutaceous phosphorite, siliceous phosphorite, dense phosphorite and brecciated phosphorite.

The phosphorite mineral composition consists chiefly of fluoroapatite and collophanite (70 to 80%) and of clay minerals (3-10%) with an accompanying 1 to 10% quartz and 1-10% zirlite (an amorphous aluminum-hydrate encrustation) as well as small amounts of pyrite, fragments of carbonate, ferric oxide, and chlorite. The recent study in 2014 of 5 thin sections has confirmed the nature of the mineralization.

The key element of commercial interest in the phosphorite mineral is phosphorus (P), which occurs in the natural oxidized form as P₂O₅. According to 2017 production statistics, the combined average P₂O₅ extracted from the two mines was 30.93 percent.

The August 2014 report by the geological bureau included trace element and whole rock analyses as shown in Tables 5 and 6.

TABLE 5.
TRACE ELEMENT ANALYSES

Ore Type	Phosphate Rock						Parathion aluminum strontium ore	
Lab Sample No.	14001773	14001774	14001776	14001778	14001779	14001780	14001777	14001775
Field Sample No.	PD4-Q1	PD4-Q2	PD2140-Q2	PD3-Q2	PD15-Q1	PD15-Q2	PD3-Q1	PD2140-Q1
Elements	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Cu	20	40	40	30	30	60	40	40
Zn	50	20	20	20	20	20	20	20
Pb	30	10	10	20	20	50	30	30
Sn	<5	<5	<5	<5	<5	8	<5	10
Cr	30	60	60	40	20	100	40	60
Ni	30	30	80	40	30	70	40	50
Mo	<2	<2	<2	<2	<2	<2	<2	<2
V	10	40	50	40	30	80	40	<10
Co	5	10	20	<5	<5	5	<5	<5
Ag	<0.1	0.8	0.7	0.2	0.5	0.2	<0.1	0.3
Li	300	300	300	50	20	300	<10	300
Be	10	10	10	10	<2	50	<2	30
Zr	<10	<10	<10	<10	<10	20	<10	<10
B	20	30	100	20	30	150	50	1000
Ba	500	300	1250	200	200	1000	400	8000
Sr	600	600	600	1000	400	>2000	300	>2000
Mn	<200	<200	<200	<200	<200	<200	<200	<200
Ti	<200	<200	<200	<200	<200	<200	<200	<200
Bi	<2	<2	<2	<2	<2	<2	<2	<2

Description: ">" greater than, "<" below detection limit

TABLE 6.
WHOLE ROCK ANALYSES

Sample Number	Field Sample Number	Ore type	(P ₂ O ₅)/10 ⁻²	(TREO)/10 ⁻²	(SiO ₂)/10 ⁻²	(TFe ₂ O ₃)/10 ⁻²	(CaO) /10 ⁻²	(MgO) /10 ⁻²	(Al ₂ O ₃) /10 ⁻²	(F) /10 ⁻²	(SrO) /10 ⁻²	
14001765	PD2140-ZH1	Parathion aluminum strontium ore	26.43	0.088	4.96	1.59	30.53	0.21	18.00	1.62	4.20	
14001767	PD3-ZH1		14.83	0.173	13.88	1.27	6.39	0.23	32.83	0.37	5.84	
		Max	26.43	0.173	13.88	1.59	30.53	0.23	32.83	1.62	5.84	
		Min	14.83	0.088	4.96	1.27	6.39	0.21	18.00	0.37	4.20	
		Mean	20.63	0.130	9.42	1.43	18.46	0.22	25.42	1.00	5.02	
		Mean Square	5.80	0.040	4.46	0.16	12.07	0.01	7.42	0.63	0.82	
		Coefficient of variation	28.12	30.690	47.35	11.19	65.40	4.65	29.20	63.09	16.35	
14001763	PD1-ZH1	Phosphate rock	33.21	<0.04	5.13	1.48	47.24	1.06	4.04	2.84	0.17	
14001764	PD1-ZH2		24.70	<0.04	3.87	1.53	42.72	6.06	3.07	2.13	0.14	
14001766	PD2140-ZH2		31.69	<0.04	5.28	2.13	45.84	1.46	5.40	2.90	0.082	
14001768	PD3-ZH2		28.34	<0.04	2.94	3.24	44.86	3.63	2.90	2.78	0.32	
14001769	PD4-ZH1		28.48	<0.04	4.92	2.68	43.67	2.65	4.40	2.61	0.11	
14001770	PD4-ZH2		34.21	<0.04	2.89	1.35	49.53	1.52	2.40	3.28	0.10	
14001771	PD15-ZH1		34.25	<0.04	4.01	0.93	47.61	0.38	5.61	3.09	0.46	
14001772	PD15-ZH2		29.12	0.060	8.11	1.97	40.34	0.95	10.47	2.36	0.37	
		Max	34.25	0.060	8.11	3.24	49.53	6.06	10.47	3.28	0.46	
		Min	24.70	0.060	2.89	0.93	40.34	0.38	2.40	2.13	0.08	
		Mean	30.50	0.060	4.64	1.91	45.23	2.21	4.78	2.75	0.22	
		Mean Square	3.18	0.000	1.57	0.71	2.77	1.74	2.41	0.35	0.13	
		Coefficient of variation	10.43	0.000	33.82	37.09	6.12	78.71	50.37	12.73	59.77	
					(Cd) /10 ⁻⁶	(As) /10 ⁻⁶	Acid insoluble /10 ⁻²	(CO ₂) /10 ⁻²	(Cl) /10 ⁻²	(I) /10 ⁻²	CaO/(P ₂ O ₅)	F/(P ₂ O ₅)
14001765	PD2140-ZH1	Parathion aluminum strontium ore			1.62	14.7	20.95	0.53	181	35.7	1.15	0.0532
14001767	PD3-ZH1				3.38	11.9	48.62	0.18	27.1	14.1	0.43	0.0584
		Max			3.38	14.67	48.62	0.53	180.50	35.69	1.15	0.06
		Min			1.62	11.94	20.95	0.18	27.10	14.06	0.43	0.05
		Mean			2.50	13.31	34.78	0.36	103.80	24.88	0.79	0.06
		Mean Square			0.88	1.37	13.84	0.17	76.70	10.81		
		Coefficient of variation			35.27	10.30	39.79	47.70	73.89	43.45		
14001763	PD1-ZH1	Phosphate rock			1.91	22.4	5.39	0.53	186	48.6	1.42	0.0601
14001764	PD1-ZH2				1.19	18.6	4.62	13.6	206	40.1	1.73	0.0497
14001766	PD2140-ZH2				2.49	21.3	7.42	3.28	218	59.8	1.45	0.0633
14001768	PD3-ZH2				1.46	8.86	3.65	9.19	244	53.6	1.58	0.0620
14001769	PD4-ZH1				4.40	12.6	6.60	6.27	212	58.2	1.53	0.0599
14001770	PD4-ZH2				2.10	11.9	3.12	3.97	269	61.0	1.45	0.0663
14001771	PD15-ZH1				1.46	7.69	7.44	1.45	240	59.7	1.39	0.0648
14001772	PD15-ZH2				2.17	8.35	13.54	1.04	248	40.0	1.39	0.0585
		Max			4.40	22.36	13.54	13.61	269.40	61.02	1.73	0.0663
		Min			1.19	7.69	3.12	0.53	186.20	40.02	1.39	0.0497
		Mean			2.15	13.96	6.47	4.92	227.93	52.61	1.49	0.0606
		Mean Square			0.94	5.57	3.08	4.26	25.22	8.19		
		Coefficient of variation			43.81	39.90	47.60	86.63	11.07	15.57		

The values for Mine 1, as seen from the above tables are consistent with the results from the samples independently collected by WGM (see Table 6) as part of its November 2013 site visit. WGM's samples were collected from the phosphorite beds within the two mines. Samples 1 to 3 were obtained from Mine 1, while samples 4 to 6 were obtained from Mine 2. Samples 4 to 6 were channel samples but did not cross the full extent of the mineralization. The locations of the samples collected by WGM are shown in Table 7.

**TABLE 7.
LOCATIONS OF WGM DUE DILIGENCE SAMPLES**

Mine 1 level 15	
1	Stope 1 Draw pt 2
2	Stope 2 Draw pt 1
3	Stope 1 Draw pt 3
Mine 2 Level 1950	
4	Development ore pt1
5	Development ore pt2
6	Development ore pt3

The WGM samples were analysed SGS Tianjin Mineral Laboratory, Tianjin, PRC using method ICP95A. This method provides for analysis of all major oxides and the typical range of accessory minerals affecting phosphate ore quality, including uranium and thorium. It is noted that method ICP95A has an upper limit of detection for P₂O₅ of 25 %. Samples 1,2,3,5 and 6 assayed in excess of 25% P₂O₅ and were re-assayed using a gravimetric method to determine the P content in apatite. Summary assays for the samples are detailed in Table 8.

**TABLE 8.
SUMMARY ASSAY DATA – WGM DUE DILIGENCE SAMPLES**

Method	ICP95A P ₂ O ₅ %	Apatite_P P ₂ O ₅ %	ICP95A									PHY01K LOI %
			Al ₂ O ₃ %	CaO %	Cr ₂ O ₃ %	Fe ₂ O ₃ %	K ₂ O %	MgO %	MnO %	Na ₂ O %	TiO ₂ %	
Limit of Detection												
Lower	0.01	0.0001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Upper	25	100	75	60	10	75	25	30	10	30	25	100
Sample No.												
1	>25	31.84	8.34	45.27	0.01	1.94	0.86	0.23	0.03	0.20	0.38	3.81
2	>25	34.89	3.32	43.90	<0.01	1.10	0.25	0.08	<0.01	0.14	0.15	2.19
3	>25	36.52	4.33	49.23	<0.01	1.69	0.28	0.19	0.02	0.13	0.19	2.93
4	18.66	n/a	0.87	39.12	<0.01	2.42	0.22	12.10	0.31	0.07	0.05	24.04
5	>25	29.53	2.98	40.91	<0.01	3.53	0.96	0.42	0.18	0.08	0.14	4.54
6	>25	29.29	1.47	46.65	<0.01	1.69	0.37	4.41	0.18	<0.01	0.08	9.20

Trace element assays for composite samples are detailed in Table 9.

TABLE 9.
TRACE ELEMENT ASSAYS – COMPOSITE SAMPLES, WGM DUE DILIGENCE SAMPLES

Method	ICP95A Ba Ppm	ICP95A Sr Ppm	ICP95A Zr Ppm	ICP95A Nb Ppm	ICP95A Y Ppm	ICP95A Zn Ppm	ICM12B Ag Ppm	ICM12B Al %	ICM12B As Ppm	ICM12B Ba Ppm	ICM12B Bi ppm	ICM12B Ca %	ICM12B Cd ppm	ICM12B Ce ppm
LDL	10	10	10	10	10	5	0.01	0.01	1	5	0.02	0.01	0.01	0.05
UDL	100000	100000	100000	100000	100000	10000	10	15	10000	10000	10000	15	10000	1000
Mine 1 level 15														
1	Stope 1 Draw pt 2	418	2380	168	12	148	123							
2	Stope 2 Draw pt 1	175	3470	59	<10	89	261							
3	Stope 1 Draw pt 3 composite 1-2-3	207	6122	94	<10	86	153	0.30	1.33	16	291	0.21	>15	2.99 16.70
Mine 2 Level 1950														
4	Dvlpmnt ore pt1	107	244	19	<10	18	93							
5	Dvlpmnt ore pt2	230	314	44	<10	53	974							
6	Dvlpmnt ore pt3 composite 4-5-6	196	374	31	<10	33	157	0.32	0.82	30	267	0.11	>15	2.12 26.80
Method	ICM12B Co Ppm	ICM12B Cr Ppm	ICM12B Cu Ppm	ICM12B Fe %	ICM12B Ga Ppm	ICM12B Hg Ppm	ICM12B K %	ICM12B La Ppm	ICM12B Mg %	ICM12B Mn Ppm	ICM12B Mo ppm	ICM12B Na %	ICM12B Ni ppm	ICM12B P ppm
LDL	0.1	1	0.5	0.01	0.1	0.01	0.01	0.1	0.01	5	0.05	0.01	0.5	50
UDL	10000	10000	10000	15	10000	10000	25	10000	15	10000	10000	10	10000	10000
Mine 1 level 15														
1	Stope 1 Draw pt 2													
2	Stope 2 Draw pt 1													
3	Stope 1 Draw pt 3 composite 1-2-3	14.2	33	35.3	0.99	4.9	0.08	0.35	10.9	0.08	158	7.49	0.13	63.4 >10000
Mine 2 Level 1950														
4	Dvlpmnt ore pt1													
5	Dvlpmnt ore pt2													
6	Dvlpmnt ore pt3 composite 4-5-6	3.7	40	19.8	1.57	5.6	0.09	0.52	26.1	3.26	1663	4.78	0.11	22.7 >10000
Method	ICM12B Pb Ppm	ICM12B Rb Ppm	ICM12B Sb Ppm	ICM12B Sc Ppm	ICM12B Sn Ppm	ICM12B Sr Ppm	ICM12B Th Ppm	ICM12B Ti %	ICM12B Tl Ppm	ICM12B U Ppm	ICM12B V ppm	ICM12B W ppm	ICM12B Y ppm	ICM12B Zn ppm
LDL	0.2	0.2	0.05	0.1	0.3	0.5	0.1	0.01	0.02	0.05	1	0.1	0.05	1
UDL	10000	10000	10000	10000	1000	10000	10000	15	10000	10000	5000	10000	10000	10000
Mine 1 level 15														
1	Stope 1 Draw pt 2													
2	Stope 2 Draw pt 1													
3	Stope 1 Draw pt 3 composite 1-2-3	23.1	11.8	3.12	3.8	1.6	2616.3	4.4	<0.01	0.53	45.91	29	0.7	93.51 176
Mine 2 Level 1950														
4	Dvlpmnt ore pt1													
5	Dvlpmnt ore pt2													
6	Dvlpmnt ore pt3 composite 4-5-6	34.7	15.2	5.03	2.3	0.8	300.0	2.5	<0.01	1.43	16.81	143	0.4	33.64 416

The SGS assays for the six samples collected by WGM show P₂O₅ values of 29.29% to 36.52% except Sample 4, which assayed 18.66% P₂O₅. The assayed values for the major gangue elements are in general agreement with the reported historic assay values except for Sample 4. Sample 4 was collected outside of the main ore zone and is representative of the lower grade zones. Trace element assays show very low levels for all elements of interest.

The only comments on the chemical components of the phosphorite material which were presented for review for WGM's original Technical report came from a report on Shi Sun Xi (Coal Design & Research Institute of Sichuan Province-2006). The more recent 2014 report provides a similar review of the chemical components for Mine 1 as seen in the above tables, which shows similar results.

The Coal Design & Research Institute of Sichuan Province determined that the major gangue mineralization in this phosphorite includes MgO, Fe₂O₃, Al₂O₃, and CO₂. These gangue minerals will have no impact on the P₂O₅ quality or production and will report to the slag from the furnace operation. Recent August 2014 analyses including P₂O₅, CaO, F, Fe₂O₃, Al₂O₃, SiO₂, MgO, and CO₂, as well as trace element analyses can be summarized as follows:

- The content variation of MgO is between 0.05% and 3.32% and 0.72% in average; with a high degree of variance. The MgO content in the phosphorite is not uniform and is negatively correlated with P₂O₅. It is closely related with the content of CO₂, which is 2.68%; lower than the requirement (MgO/P₂O₅<8) of the industrial indexes, thus being a low magnesium phosphorite. The WGM samples reported MgO values ranging from 0.08% to 4.41%, exclusive of Sample 4, which assayed 12.10%. The WGM samples confirm the low MgO characteristics of the ore;
- Fe₂O₃ assays range between 0.74% and 6.75% and average 3.24%; with a high variance. The iron content in the phosphorite is not uniform and is negatively correlated with P₂O₅. Iron content is positively correlated with Al₂O₃. The ratio of Fe₂O₃/P₂O₅ is 12%, which is higher than the Fe/P requirement of the industrial indexes. The WGM samples exhibited a Fe₂O₃ range of 1.10% to 3.53%, with Sample 4 reporting an Fe₂O₃ content of 2.42%. The Fe₂O₃/P₂O₅ ratio ranged from 3.15% to 12.97% (sample 4). These values are consistent with the reported Chinese results;
- Al₂O₃ assays range from 1.2% and 8.79% and average 4.01%; with a high variance. The alumina content in the phosphorite is variable and negatively correlated with P₂O₅. Alumina content is positively correlated with the content of Fe₂O₃. The ratio of Al₂O₃: P₂O₅ is 15%, which is higher than the Al/P requirement of the industrial indexes. The WGM samples reported Al₂O₃ values ranging from 0.87% to 8.34%, with A/P ratios of 4.66% (sample 4) to 26.19% (sample 1), with the remaining samples reporting less than 12%; and,

- CO₂ assays range from 0.64% and 6.28% and average 1.59% with a high variance. The level of CO₂ is not related to the content of P₂O₅, but it is positively correlated with MgO, indicating dolomite as the prime CO₂ containing mineral. The CO₂ content is lower than the requirement (CO₂ of 4%) in the industrial indexes. The WGM samples reported LOI values ranging from 2.19% to 24.04% (sample 4). Sample 6 had a reported value of 9.20%, with the other samples reporting less than 4% LOI. WGM does not consider the relatively low CO₂ content a detriment in processing.

Overall, the WGM grab samples confirm the quality of the ore and as represented by both the historic sampling result and current analytical results. WGM is satisfied that the historic assay data are representative of the ore and that the historic assay data can be used in reporting resources.

7.12 MINERALIZATION AT FENGTAI

While the upper Sinian Dengying Formation is extensively exposed on the property exploration has been very limited.

Barite mineralization has been noted as well as a local pyrite occurrence, both in the Upper Sinian Dengying Formation in the NW portion of the property.

The barite mineralization zone striking NE and dipping, occurs in the “granophytic” dolostone of the Upper Sinian Dengying Formation, with a bedding consistent with the strata. The trench TC03 indicated that the mineralization zone was 140 m long and 15 m wide, and offered some samples which returned a set of assay result of 8%~12% BaSO₄.

Phosphate has not been discovered on surface to date. However based on the Phosphate beds at Cheng Qiang Yan and the adjacent Longman properties to the south it is expected that the phosphate bed underlies at least part of the property as well.

8. DEPOSIT TYPES

The primary phosphorite bed of economic interest at both Cheng Qiang Yan and Shi Sun Xi is of sedimentary origin. From the work reviewed and interviews conducted for this report, it is believed that the phosphorite beds are of different geologic ages. The geology reports from the two deposits differ as to the geologic age of the phosphorite bed with the bed at Shi Sun Xi being of Devonian age. WGM takes exception with this assignment believing that the phosphorite bed at Shi Sun Xi is more likely of Lower Cambrian age and equivalent to the Meishicun Formation similar to the deposits on the east flank of the very large anticline that forms the basis of most of Mianzhu's phosphorite production. However, whatever the age of the phosphorite, that determination has no impact on the Resources estimated for the two properties which are separated by approximately 8 km.

The regional geologic map of the phosphorite production area of Mianzhu, supplied by the Sichuan Institute of Chemical Engineering and Geological Exploration, indicates that the bed on both properties is the same Devonian age. The geology report for Cheng Qiang Yan, with accompanying stratigraphic descriptions, also written by the Sichuan Institute of Chemical Engineering and Geological Exploration, indicates that the phosphorite bed is Sinian (Upper Precambrian) age and located in the Deng Ying Formation. The stratigraphic descriptions of the strata lying above the phosphorite bed at Cheng Qiang Yan do not match the description of the equivalent strata from Shi Sun Xi. The "Devonian" age assignment from the regional geologic map places the preferred stratigraphic location for the bed on both properties as disconformably resting on the Deng Ying Formation, a position and circumstance similar to the Meishucun Formation on the eastern flank of the anticline and the stratum from which the state-run Qing Ping phosphorite mine operated, at rates approaching 1,000,000 tpa until the Wenchuan Earthquake.

Current data reviewed indicate that there was no significant sedimentary phosphogenesis and accumulation event in the Devonian anywhere in Asia and only minor occurrences elsewhere in the world are assigned to this age. To WGM's knowledge, with the exception of Shi Sun Xi and one other, all other producing phosphorite occurrences in Sichuan are reported as Upper Sinian or Lower Cambrian in age (either Deng Ying Formation or Meishucun Formation). However, scientific journals from the PRC on this subject are difficult to find and evaluate.

Current regional geologic data and reports indicate that a more likely age for the Shi Sun Xi phosphorite bed (if, in fact, it is different from Cheng Qiang Yan) is Lower Cambrian and it should be assigned, in general, to the Meishucun Formation of that age which lies stratigraphically above the Deng Ying Formation of the same age (approx). WGM has no doubts that the roof material for the Shi Sun Xi bed is Devonian and there is a significant unconformity between the two strata just as there is an unconformity between the phosphorite bed and the underlying Upper Sinian strata identified as the Deng Ying Formation.

The “Devonian” age assignment for the phosphorite bed at Shi Sun Xi, as explained by personnel from the Sichuan Institute of Chemical Engineering and Geological Exploration, requires a special designation as to the type of the deposit. This type of “Devonian phosphorite deposit” is designated as the “Shi Fang Type” in Sichuan Province. As explained, the phosphogenesis and accumulation events for this type of deposit occurred originally in the Lower Cambrian age as the Meishucun Formation. During the depositional hiatus and erosional events that occurred between the Middle Cambrian and Devonian ages the phosphorite bed was severely weathered which increased the quality of the bed significantly compared to the Meishucun Formation. This is a natural “beneficiation” process. During the initial depositional events during the sea on-lap in the Devonian age, the “Shi Fang Type” beds were displaced somewhat and incurred internal structural changes to the bed which was subsequently covered with mid- to upper shelf Devonian marine sediments.

The August 2014 report issued by Sichuan Institute of Geology and Mineral Development Geochemistry Team, positions the phosphorite bed within Upper Devonian, Sha Wo Zi Formation.

9. EXPLORATION

9.1 PROCEDURES/PARAMETERS OF SURVEYS AND INVESTIGATION

Exploration at the Cheng Qiang Yan and Shi Sun Xi properties has been ongoing since the Wenchuan Earthquake in 2008. Exploration on the Cheng Qiang Yan and Shi Sun Xi properties has been focussed on extensive underground development to gradually re-establish production and upgrade its operations to international standards. There has been no new work on the FengTai property in 2017. Surface exploration has not been possible as access roads have yet to be rehabilitated. The reader is referred to the WGM March 2016 report for details of the exploration, prior to 2013 and up until December 2015.

Activities during 2017 at the Cheng Qiang Yan property consisted of development work to explore new ore zones and requested remedial work in preparation for increased production to 300,000 tpa.

Exploration in 2017 focussed on underground development which consisted of a total of (2,048.4 m) of which a total of (637.5 m) have been designated as exploration related by the operators.

For the Shi Sun Xi mining permit and exploration permit work in 2017 consisted primarily of underground development work but also included eleven underground ore definition drill holes. Underground development work totalled 4,298.9 m all of which was designated as exploration related.

The company continues to update its underground surveying and geological mapping and all AutoCAD drawings as well as upgrading its database.

For the FengTai property, access via surface routes remains blocked since the 2008 earthquake. There has been no new exploration work since the geological bureau completed an assessment report in 2014 and proposed a surface exploration program. No further work was reported on the underground access tunnel started in 2015 from the Cheng Qiang Yan mine. The company has submitted an application for renewal of the Feng Tai exploration permit which expired 12 December 2017. As at the date of this report the renewal had not been granted.

9.2 SAMPLING METHODS AND SAMPLE QUALITY

Exploration work, in 2017, except for the recent drilling of 11 underground holes, was limited to underground development activities for the confirmation of ore and preparation of stopes for mining and the necessary haulage and support infrastructure. This work is generally conducted under the supervision of company management and is reviewed by the local geological bureau to assure the work is conducted in conformity with currently required procedures in China. Sampling methodology of the mineralized zone by mining contractors remains a challenge as grades are still often visually estimated and zones where the ore appears substandard are either not sampled or not reported. WGM continues to work with the mine manager to implement more rigorous sampling and data reporting program. In 2017, the company started underground drilling to assist with ore definition for stope planning and development. Based on WGM's experience the company is advancing well in bringing its practices generally in conformity with current international procedures.

The company has recently completed the upgrading of both the Cheng Qiang Yan and Shi Sun Xi mine workings to the 1980 Xian co-ordinate system. Cheng Qiang Yan was updated in 2015, while work at Shi Sun Xi was completed in 2016. The survey equipment used was a Model 9600 static GPS receiver units (accuracy of $\pm 1 \text{ mm} + 5 \text{ ppm}$) calibrated to the Class D embedded survey control point (GD01) at the Mianzhu Qingping Township Airport. Previous elevation, topographic control point surveying was carried out on surface with a real-time GPS system to update the existing topographic map with the new survey results. The topographic survey is compliant with National Standard of People's Republic of China GB/T 18314-2001. In 2013/2014, a total of 6 Level E GPS points were recorded, and suitable spacing for level E was selected according to the National Standard. Each Level E GPS point was marked with cement and 12 mm steel cable at center point and a number assigned. The coordinate system used was Xi'an 1980 and elevation was 1985 National Elevation Datum. Trimble Geomatics Office software was used for data interpretation, and Hgenius 1.0 software was used for elevation calculation. The accuracy in X, Y and Z is to 0.001 m and angle is to 1 second. Traverse survey was done based on the Level E GPS points.

Surveys of surface exposures were carried out by total station, TOPCON 3002LN. The verification on drill holes showed the error in offset is 0.12 m in plane and 0.15 m in elevation. Thirty percent (30%) of the survey points are checked for quality assurance purpose.

Underground geological mapping is tied to survey points and now allows for the updating of previous survey data and to update the distribution of the mineralization both within the current mining permit levels and in the exploration permit area below the current mining areas.

The updated section plans reviewed by WGM in 2017 for both Cheng Qiang Yan and Shi Sun Xi, were extremely detailed and presented both the geology as well as the orientation (dip and strike) of the phosphorite bed and any other pertinent structural details encountered.

Underground sample locations and survey points as well as rock descriptions symbols are recorded on adit long section plots. All information is entered into an AutoCAD drawing file with appropriate orientation details.

Required technical reporting for regulatory filings in China is usually preformed and or reviewed by the local Geological Bureau. Their data collection, as most exploration activities is regulated by numerous activity specific standards. More details pertaining to the drilling are provided in Section 10. All exploration work including drilling must be conducted in accordance with National Standard of People's Republic of China DZ/T 0209-2002 "Specific for phosphorous mineral exploration", which includes standard sampling procedures. It is specified that all sampling shall be continuous through the entire sample length; channel sample cross section shall be 10 cm by 5 cm and the size shall increase in brecciation zones; sample length shall not exceed mining width and length shall be limited between 0.5 m to 1 m when sampling seam interbedded with gangue. Similar procedures are required for drill core.

9.3 RELEVANT INFORMATION

WGM has no received further update on the company's work with the local geological bureau to resolve some of the discrepancy between the alignment of topographic features between the 1:10,000 FengTai geology map and the adjacent more detailed 1:5,000 Cheng Qiang Yan property maps.

The steep terrain and poor satellite coupling in the northwestern portion of the Cheng Qiang Yan property have also resulted in some difficulties in determining accurate elevation measurements and surface locations for some of the sample points in these areas.

The company has throughout 2017 continued to improve its quality control and data management.

Most underground exploration activity was previously conducted as pre development work along the mineralized structure with drifts usually spaced 15 m apart to cross cut the mineralized structure. Starting in 2017, the company started using underground drilling to replace drifting. While the company is now using a churn drill, they understand the importance of good sample collection and intend to acquire more appropriate equipment. WGM has been provided with data for the work completed in 2017. While it shows improvement from prior years, the data collected and reported remains incomplete, and WGM was only able to incorporate some of the data as anecdotal information.

For local regulatory reporting requirements, including mineral resource updates, the required geological surveys, drilling such as the 2016 drill program and underground sampling as well as testing is carried out by and under the supervision of the geological bureau.

As part of its mandate the geological bureau will conduct the drilling, log and sample the core send the core to a laboratory for assay and prepare a technical report which will be provided to the company at the conclusion of its work. It is not uncommon that the results may not be available for a number of months after the work is completed.

Data collected by the geological bureaus or teams may also be incorporated into Mineral Reserve estimates based on current PRC reporting standards. Although WGM is generally not able to review these estimates, WGM does incorporate sample information and analytical results when data becomes available, in their Mineral Resource estimates.

9.4 RESULTS AND INTERPRETATION OF EXPLORATION

Development advances in 2017 at the Cheng Qiang Yan property continue to confirm the continuity of mineralization as is evidenced by their production statistics and as outline in previous WGM studies and the 2016 feasibility study in conformity with Chinese National Standards which include resources for the upper phosphate bed on the Cheng Qiang Yan property. While this area has not been visited nor have the mineral reserves been reviewed by WGM, their inclusion as part of the Chinese feasibility study further confirms the existence and extent of the upper mineralized zone on the Cheng Qiang Yan property and supports their potential projection to extend onto the FengTai property approximately 800 m to the northwest.

No new material geological or Mineral Resources information in conformity with NI 43-101 which would alter WGM's current geological interpretation for Cheng Qiang Yan property was reported in 2017. However, the non-renewal of the mining permit February 28, 2018 will be of material impact.

The eleven recent drill holes at Shi Sun Xi confirmed the continuity of the mineralization down dip and the estimated average grade of the zone is consistent with sample results from nearby workings. Preliminary exploration results available to WGM to-date indicate the mineralization underlying the eastern portion of the exploration permit to be much more sporadic.

Underground exploration in 2017 was focussed on the drilling and property access was not possible since June 2017 due to the impassable access roads.

10. DRILLING AND TRENCHING

For mineral resource estimation purposes WGM has treated all surface trench samples, and underground sampling as equivalent to drill hole samples. Eleven (11) new underground holes were drilled on the Shi Sun Xi property in 2017 to verify the projected mineralized zone prior to stope development. The company started in 2017 to use underground drilling as part of its stope pre-development work in lieu of typical underground channel sampling of test development drifts at the Shi Sun Xi property

No new information was provided for Cheng Qiang Yan prior to the suspension of mining in June 2017 hence there were no changes to the current Cheng Qiang Yan geological dataset in 2017. Records include nineteen trenches referenced in either reports or on drawings reviewed by WGM prior to 2013 and an additional 18 underground samples and six trenches reported prior to 2016. Details of sampling are available in WGM's previous technical report dated March 16, 2016.

Eleven (11) drill holes (Tables 10 and 11) totalling 422 m are reported from the Shi Sun Xi property for 2017. The new underground drilling was carried out by company personnel who were also responsible for the core logging and sampling as well as hole orientation surveys. The holes were completed between February and May 2017. WGM has presented the data in the form it was received as shown in the above tables. However, due its incomplete nature, WGM has treated the data from drilling on the Shi Sun Xi as anecdotal, as it is not able to incorporate the results from the 2017 exploration in their current form into the current dataset for Cheng Qiang Yan.

WGM has been provided with the available data from the drilling at Shi Sun Xi. However since the drilling equipment used provided only rock chips, none of which have been retained, WGM is unable to comment on the quality of the sampling. The mine geologists, based on their experience, sampled only those mineralized sections which were considered to be ore grade, based on visual inspection. The entire mineralized section where sampled was submitted for analysis. Mineralized sections considered of inferior grade based on visual inspection were not sampled. All other drill cuttings were discarded. WGM is therefore unable to verify the data. However, WGM has no reason to doubt the validity of the information (as incomplete as it is) presented. The incomplete results reported by the company indicate some areas to be consistent with expected results from this area based on existing mineral resource estimates, however, the incomplete results and descriptive comments suggest that the mineralized zone becomes lenticular and more sporadic.

**TABLE 10.
DRILL HOLE PARAMETERS**

No	E	N	Level (m)	Height (m)	DH EL	Azimuth (degree)	Dip (degree)	Length (m)	Location	Description
DH1	35412833.21	3502386.78	1724.2	1.8	1726.0	20	33	21	11# survey point inward by 13.8m	0~13.5m footwall, 13.5~14.5m traces of mineralization, 14.5~21m Hanging wall
DH2	35412833.21	3502386.78	1724.2	1.3	1725.5	20	10	15	11# survey point inward 13.8m	0~11m Footwall, 11~13 likely Hanging wall, 13~15m Hanging wall
DH3	35412824.22	3502389.2	1724.1	1.3	1725.4	335	4	21	Away from intersection by 5.5m	0~1m Footwall, 1~15m mineralization, 15~20m likely mineralization, 20~21m Hanging wall
DH4	35412824.22	3502389.2	1724.1	2.0	1726.1	335	40	23	Away from intersection by 5.5m	0~8m Footwall, 8~15m traces of mineralization, 20~23m Hanging wall
DH5	35412789.34	3502382.33	1723.9	1.2	1725.1	345	5	58	#10 survey point outward by 3m	0~39m Footwall, 39~54m mineralization, 54~58m Hanging wall
DH6	35412789.34	3502382.33	1723.9	1.6	1725.5	345	30	45	#10 survey point outward by 3m	0~42m Footwall, 42~44m traces of mineralization, 44~45m Hanging wall
DH7	35412753.31	3502373.01	1723.7	1.7	1725.4	345	40	38	#10 survey point outward by 40.2m	0~26m Footwall, 26~37m mineralization, 37~38m Hanging wall
DH8	35412753.31	3502373.01	1723.7	1.3	1725.0	345	5	56	#10 survey point outward by 40.2m	0~34m Footwall, 34~56m no samples
DH9	35412733.05	3502372.36	1723.5	1.4	1724.9	3	5	66	#8 survey point outward by 2m	0~56m Footwall, 56~59m mineralization, 59~63m likely Hanging wall, 63~66m Hanging wall
DH10	35412733.05	3502372.36	1723.5	1.7	1725.2	3	35	43	#8 survey point outward by 2m	0~28m Footwall, 28~40m mineralization, 40~41m likely Hanging wall, 41~43m Hanging wall
DH11	35412705.04	3502376.24	1723.2	1.6	1724.8	350	32	36	7# survey point inward by 4.8m	0~30m Footwall, 30~34m mineralization, 34~36m Hanging wall

**TABLE 11.
PRELIMINARY ASSAY RESULTS**

Hole #	Sample No.	From (metres)	To (metres)	Assay Result (P ₂ O ₅)
DH4	4-1	1	2	12.9
	4-2	2	3	2.57
DH7	7-26	26	27	33.85
	7-27	27	28	34.98
	7-28	28	29	31.02
	7-29	29	30	n/a
	7-30	30	31	27.15
	7-31	31	32	n/a
	7-32	32	33	n/a
	7-33	33	34	n/a
	7-34	34	35	n/a
	7-35	35	36	n/a
	7-36	36	37	n/a
DH9	9-56~59	56	59	18.99
	9-59~63	59	63	5.36
DH10	10-28~32	28	32	33.67
	10-32~36	32	36	32.87
	10-36~40	36	40	33.62

WGM had previously included the results from the two diamond drill holes completed in 2016 as well as data received for underground sampling completed in 2016. To supplement the existing database with records for eight diamond drill core holes and five trenches referenced in either the reports or on drawings. The previous drill holes are ZK701, ZK703, ZK705, ZK902, ZK903 and ZK1001. Drill holes ZK701, ZK703 and ZK705 are located on neighboring properties and, as such, no detailed information was transmitted by the Sichuan Institute of Chemical Engineering and Geological Exploration. However, summarized data from these holes regarding the phosphorite bed appear on drawings that were transmitted. Drill holes ZK902, ZK903 and ZK1001 and new holes ZK 802 and ZK 1002 are located on the Mianzhu Norwest mining permit and, as such, detailed geologic logs and “basic” analyses were transmitted by the institute. The original drill holes by Mianzhu Norwest were completed between May and September 2005.

At Shi Sun Xi, the five trenches are TC123, TC124, TC125, TC126 and TC205. Trenches TC123, TC124 and TC205 are located on a neighboring property near the western extent of the mining license. However, the Institute transmitted graphic logs with “basic” analyses for these trenches. Trenches TC125 and TC126 are located in the SW part of Mianzhu Norwest’s mining license and the graphic logs, with analyses, were also transmitted by the Institute.

At Shi Sun Xi, there are two locations within the existing underground mine where organized production control samples were collected. Each of these locations was surveyed and both samples were collected in a manner similar to the Cheng Qiang Yan underground samples. This work was completed by Mianzhu Norwest and the samples analyzed at the company laboratory in Hanwang Town Mianzhu City. This work was conducted between 2006 and 2008 and the sample sites are contained, with appropriate information, on company AutoCAD drawings of each working level. There is one location at the 1950 m level and one at the 2,050 m level. These two sample locations, in the NW corner of the mining license, have been treated as “trench” locations for the work conducted by WGM.

WGM notes that the practices used in prior years including 2016 for the collection and reporting of underground samples still require updating to meet international industry practice. The practice of not collecting or reporting data for adit or stope samples deemed un-mineable based on visual inspection remains a challenge for the conversion of mineral resources to mineral reserves as the exact location data, and assay results of individual samples is not available to WGM.

Although no field operating records for the Shi Sun Xi 2016 drilling campaign were submitted for review, it is assumed that the program was conducted in accordance with the typical “Standards” mandated by the PRC National and Provincial governments and their guidelines. It is WGM opinion based on other references that the PRC works to standards that are satisfactory to the purposes of this review.

Previous representative samples collected by WGM at three locations from Level 1950 at Shi Sun Xi, confirmed the overall tenor and S.G of the mineralization, but since these samples were only collected as grab samples and they were not considered for inclusion in the channel database.

The data from underground sampling completed in 2016 was sporadic. Summary assay data and drawings showing the location within the adits of 13 of the sites sampled have been provided to WGM. While current information and record keeping in 2017 has improved not all of the exact location data, and assay results of individual samples for exploration and development work completed prior to 2017 is available.

11. SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 SAMPLING METHOD AND APPROACH

National Standard of People's Republic of China DZ/T 0209-2002 "Specific for phosphorous mineral exploration", which includes standard sampling procedures. It is specified that all sampling shall be continuous through the entire sample length; channel sample cross section shall be 10 cm by 5 cm and the size shall increase in brecciation zone; sample length shall not exceed mining width and length shall be limited between 0.5 m to 1 m when the seam is interbedded with gauge.

Sichuan Institute of Geology and Mineral Development Geochemistry Team, who carried out the 2013/2014 exploration program, reportedly followed all the required procedures. The team also claimed a standard of "Sampling procedure for phosphorous mineral exploration" was followed during sampling process. However, WGM was not able to verify this standard.

The recent underground drilling at Shi Sun Xi was conducted by company personnel. Drilling using a churn type drill produced only rock chips. WGM has not been provided with details of sampling procedures. WGM understands, based on verbal description from Mine Manager Mr. Luo, that a company geologist would collect samples at the drill, and conduct visual inspection and decide which holes to sample and the length of individual samples. Samples, which are thought to be high grade based on geologist's experience, would be sent for assay testing to an internal lab. Drill hole samples that do not pass visual inspection would be discarded after drill hole is logged. No details of how the samples were collected and prepared for shipment to the laboratory for analysis.

Similar underground drilling program was also planned at Mine 1 for 2017, and it is postponed due to delayed restart of operation.

The 2016 drill core samples were collected by the "德阳化探队", Deyang Geochemical team. Although WGM has not yet been provided with the details of the program, it is expected that the sample procedures as noted above are required to be followed.

Previous coring procedures used during field campaigns focused on the recovery of "HX" sized core or equivalent. The core was recovered and placed into core boxes and then described in detail in the field. The core was then transported to the geological team headquarters for further description and confirmation of both sets of descriptions. The chemical analyses of selected samples were probably conducted by the 21st Laboratory of Chemical Geology and Mine of Sichuan Province, considered to be independent of the issuer, which is apparently associated with the Sichuan Institute of Chemical Engineering and Geological Exploration. It has been assumed that the laboratory followed the guidelines of the

National Standard of People's Republic of China "GB/T 1871.1-1995--Assaying for Phosphorus Pentoxide in Phosphorus Ore and Phosphorus Ore Concentrate, Phosphomolybdic Acid and Quinoline Gravimetric Method and Volumetric Method". These guidelines also include standards for the analysis of iron, aluminum, calcium, and magnesium in "phosphorus ore concentrate and phosphorus ore". These methods must be followed or the laboratory could lose its accreditation.

It is assumed that no core preservation techniques were employed for any of the core (PRC standard practice) and, as such, future detailed analytical tests of the core will yield results which are not necessarily representative of the unweathered phosphorite material. The moisture content of the unweathered phosphorite material is sufficiently low so that the core will nominally acquire atmospheric moisture and "accelerate" the weathering process on the mineralization exposed by the coring process. This process affects the chemistry as well as the physical attributes of the cored material.

All phosphorite core and trench samples as appropriate from the various field programs, were hand-washed and put into the core box (or bagged in PVC containers) in sequence. All core-log forms were completed and well kept in the field, which meets the requirements for assay, photography, and sampling standards. For drill hole sealing, mortar was prepared by ratio of 1:0.7:2 of 425# cement with water and fine sands used to place a surface seal in the drill collars. All boreholes were marked with permanent cement stakes buried at the collar with hole number, date and drilling team marked on the stake.

All original records were completed in accordance with stipulations and PRC standard practices, with their contents and forms retained to keep an accurate, complete, clear and timely record of events and results. The drilling-shift records were accepted upon inspection by 3 levels of supervision and management. Other original records that were completed include procedures for compilation, inspection and proofreading. The quality of original records is reliable and provides for a precise reliable firsthand source of basic information for the preparation of the geological report.

Core was taken from the field operations to the geological team core-storage facilities where it was further described and processed. Detailed core descriptions were completed and various samples selected for chemical analysis. The core intervals selected for chemical analysis were split lengthwise by a core-splitter with one-half being retained for reference and the other half submitted to the laboratory for evaluation. Samples were defined by lithology and bed identification but never exceeded 2.0 m in length in the phosphorite bed.

For the samples derived from the several sampling campaigns at both Mines, sample collection was conducted on the premise of recording detailed records of depth, thickness and core length, along with statements of the physical properties of the phosphorite bed and overburden material, macrolithotype and core conditions. The phosphorite bed was wholly

sampled as an independent seam. Samples were weighed on site to ensure their representativeness. Core that was reduced to fines in the drill operation or contaminated were not sampled. With the intact “cylinder core” recovered from drilling, *intervals with gangue of 10 mm, or more, were rejected as were intervals of core in very small fragments or powder form.* Collected phosphorite samples were washed and dried, placed into core boxes and then sent to the 21st Laboratory of Chemical Geology and Mine of Sichuan Province for assay using the National Standard of People’s Republic of China “GB/T 1871.1-1995--Assaying for Phosphorus Pentoxide in Phosphorus Ore and Phosphorus Ore Concentrate, Phosphomolybdic Acid and Quinoline Gravimetric Method and Volumetric Method” within the set transportation time limit established by Provincial standards. Collection, packaging and transportation of all types of samples were in accordance with the Ministerial criteria and the design for detailed survey. In total, over several campaigns, samples from 13 trenches and six drill holes were sent to the Provincial chemical laboratory for analysis. In addition, 21 samples from underground mining locations were sent to the chemical laboratory of the Mianzhu Norwest in Hanwang Town Mianzhu City for assay using the National Standard of People’s Republic of China GB/T 1871.1-1995.

Samples collected for rock strength analysis are sent to one of several laboratories which specialize in such specific analytical work. Water samples collected for analyses are also sent to laboratories which specialize in such work.

References to various guidelines for data verification are found throughout this report especially in Sections 11, 12 and 13. Specific and general criteria and guidelines for conducting fieldwork, and data verification by the Institute, are briefly listed below:

- “Classification on Solid Mineral Resources/Reserves” (GB/T17766-1999);
- “Evaluation Guidelines for Mining Rights” (The Amendment Act in 2006);
- The No. 18 announcement on implementing “The Revised Evaluation Methods for the Assessment Ways of Mining Revenue” issued in 2006 by Ministry of Land and Resources;
- “Interim Measures for Prospecting and Mining Rights Assessment”; and
- “Evaluation Guidelines for Mining Rights” (The Amendment Act in 2006).

For the samples derived from the multiple field programs at both Mianzhu Norwest Mines, it has been assumed that the 21st Laboratory of Chemical Geology and Mine of Sichuan Province provided the testing and analytical results according to the protocols set forth in the National Standard of People’s Republic of China “GB/T 1871.1-1995. As explained in Section 13 of this report there is an intense and extensive data verification protocol that is dictated by internal, Provincial and National set of standards. It has been reported that this facility holds both a “China Authorization Certificate” and a National “Metrology Accreditation Certificate” which were in force at the appropriate times.

11.2 SAMPLE PREPARATION AND ASSAYING

Sichuan Institute of Geology and Mineral Development Geochemistry Team, who carried out the 2013/2014 exploration program, followed National Standard of People's Republic of China DZ/T 0209-2002 "Specific for phosphorous mineral exploration", which includes standard samples preparation. It is specified that all sampling shall be prepared in four stages, which are grinding, screening, mixing and quartering; Using Qeqott formula, the K value shall be 0.1 to 0.2; the loss during grinding shall be less than 5%; Error in quartering shall be less than 3%. The samples were sent to at Sichuan Deyang Institute of Geological Engineering and Exploration Mineral Testing Center for sample preparation and assaying. WGM understands but has not confirmed that this laboratory is independent from the Company and holds the required accreditation. No specific certified reference standards used by the laboratory were identified.

Prior to Mianzhu Norwest's establishment of operations in 2002, all sample preparation and all analytical routines were conducted at the 21st Laboratory of Chemical Geology and Mine of Sichuan Province which was independent of the company. Later sampling in the 2002 to 2008 period was completed by Mianzhu Norwest with the analysis completed at the chemical laboratory of Mianzhu Norwest in Hanwang Town Mianzhu City. While all sampling and assaying that was used was not independent of the company, WGM has relied on its accuracy based on the more than 10 years of successful production history by Mianzhu Norwest.

All assaying was completed using the National Standard of People's Republic of China "GB/T 1871.1-1995--Assaying for Phosphorus Pentoxide in Phosphorus Ore and Phosphorus Ore Concentrate, Phosphomolybdic Acid and Quinoline Gravimetric Method and Volumetric Method" with further implementation of appropriate Provincial and/or current industrial standards for assay procedures. All tasks of sample collection, packaging and assay determination were under the guidance of the appropriate Ministerial, Provincial and/or National standards and rules.

According to Provincial and National guidelines, after typical sample preparation procedures, individual analytes were quantified using wet chemical methods, atomic adsorption and other testing as required. During the analytical procedures, quality control and quality assurance were checked on a continuing basis. Internal laboratory checking, which is actually a reanalysis of the individual samples, was completed on 5% of the samples received. "Standard" samples (knowns) were inserted into the set of samples being tested. These "standards", inserted about once every day, were used for internal laboratory procedure control and checking of the analytical accuracy. In addition to checking overall laboratory performance, about once per year a National Standard is analyzed by all "phosphate" laboratories in China and the results compared. Such actions and reforms as necessary are completed immediately under both Provincial and National supervision. This facility is authorized and certified by both the National and Provincial governments. All differences

accounted for in the QA/QC programs are rectified either through re-analysis or through mathematical procedures which account for analytical “drift.”

In general, two types of analyses were prepared from the samples from the deposits:

- Basic [“Fundamental”]; and
- Group [“Combinatory”].

The “Group” sample analysis reported for this report is assumed to be based on the report by the Coal Design & Research Institute of Sichuan Province in 2005. However, no analyses have been presented for review in this Technical report.

In the PRC, it is common to composite various exploration/development samples for “group assays”. While this methodology and approach provides some limited information, the approach does not offer any insights into the vertical variability of the phosphorite bed or the areal variability of the phosphorite bed between sampling points. In the exploitation of the phosphorite, particularly on large properties, the variability of the phosphorite can, and often does, change the performance of the “ore” in whatever processing flowsheet is used.

Normally, in phosphorite exploration and development work in the “western world” a number of constituents are analyzed on each and every sample without physically compositing the material. Generally these constituents include: P_2O_5 , CaO, SiO_2 , MgO, Fe_2O_3 , Al_2O_3 , and CO_2 (LOI) “Fundamental”. Other constituents are often analyzed on composited “Combinatory” samples – either whole-bed analysis (preferred) or groups of holes. Those constituents can include, but are not limited to: Na_2O , K_2O , SO_3 , C, F, Cl, Cd, As, Hg, Se, etc. Each of these analytes plays a role in evaluating the success of a process flowsheet and/or determination of harmful constituents in various waste streams from the process or in the final product being produced.

Analyses for the 2013/2014 program for Cheng Qiang Yan (Mine 1) included whole rock analyses for 10 samples and trace elements for 7 samples, however specific assay techniques were not specified. Also 14 duplicate samples and 7 verification (check) samples were also analysed as part of the sample verification program. The number of duplicate and check samples is in accordance with good QA/QC procedures. No information was provided on the number of certified reference standards or blanks incorporated in the main sample assay program, or if standards and blanks were also used placed in the duplicate and check assay sample batches.

The results of the duplicate and check assays show a very high degree of correlation, with correlation coefficient values (R^2) in excess of 99% for P_2O_5 , SrO and acid insoluble (Table 12).

**TABLE 12.
DUPLICATE AND CHECK ASSAY RESULTS**

Duplicate Samples	P ₂ O ₅	SrO	Acid Insolubles
R ²	0.99977	0.9987	0.9993
Regression Line	y=1.0007x	y=0.9952x	y=1.0018x
Check Samples			
R ²	0.9978	0.9995	0.9988
Regression Line	y=0.9855x	y=0.9004x	y=0.9896x

For the Shi Sun Xi drill holes only the “basic” analysis group was run on each sample and consists of results for only P₂O₅, acid insolubles (H.P.) and SiO₂. With regard to all of the trench samples from both properties, only the P₂O₅ analyses have been presented for review. The analyses for the samples collected underground on both properties, only P₂O₅ and Fe₂O₃ were completed by Mianzhu Norwest. The same analytical standards and methods were applied as used for the trench and drill hole samples.

Phosphorite bed densities were determined using the displacement method on selected samples. These individual densities were then weight averaged for the property. A single average density was used for the bed on each property to determine the contained tonnage. A total of 28 samples collected in 1997 were used at and a total of 16 samples from Shi Sun Xi were used for that property.

Additional Mine 1 density samples (12) were collected by the geological bureau in 2013 and 30 samples were tested in 2014. The results for the most recent testing indicated an average density of 3.07 t/m³ for the main zone at Mine 1 and 3.09 t/m³ for the up-faulted unit.

The use of an “averaged” density for resource calculations is not unwarranted in this type of geologic environment although some actual minor variations must be expected due to the differing contributions of the individual phosphate layers at different locations.

Values for approximately the same density is used for both of Mianzhu Norwest’s Mines: WGM’s channel sampling results returned specific gravity values of 2.97 t/m³ (sample 4) to 3.18 t/m³. The average specific gravity value, was 3.09, which is in general agreement with the historic reported values.

WGM has elected to use an average of 3.08 t/m³ for both the main and up-faulted zone at Cheng Qiang Yan and 3.03 t/m³ at Shi Sun Xi.

Several groups (sets; phosphorite roof and floor) of rock samples were collected from both the trenches and drill holes to examine the rock mechanics of the rock strata which form the roof and floor of phosphorite bed. In addition, several “tests” were completed on the phosphorite material itself. As appropriate, samples were marked with the orientation of top and bottom,

the block number, the specifications and sampling depth. The individual samples were then packed in wax paper and kraft paper, wax sealed and sent to the lab in a timely fashion.

The phosphorite and rock samples are not considered “high value” assets and as such do not require the extra precautions of physical security that other more valuable minerals might require. However, the QA/QC procedures implemented by the laboratories do provide “security” for the accuracy of the analyses and the results which are reported. The following are a few of the steps employed by the QA/QC system:

- Every sample is analyzed in duplicate and retests are completed by two technicians in parallel;
- The results of the analyses are rechecked by the assayer, by the group leader and finally by the “technician-in-charge” for a total of three checks;
- For results in dispute, the re-analysis must be conducted simultaneously with a standard to verify accuracy;
- “Standard” samples are all certified as are the sub-level standards;
- Implementation of assay results verification is organized by the person in charge of techniques at the lab and in accordance with existing protocols and appropriate standards;
- Duplicate assays are by the same or different analytical methods as required; and
- The person in charge (see above) is to complete a statistical analysis of the verification data to discover trends and to appraise the results with statistical measures.

The bureau also analysed 10 water samples in 2014 to determine the nature of the runoff from the mines. Table 13 summarizes the results of the water samples. WGM understand the sampling was required to meet Chinese regulations for discharge into local drainages. WGM understands regulated analytical procedures were applied for the samples.

WGM has reviewed the results of the samples and finds that the results appear to be within limits considered acceptable in most jurisdictions, Phosphate, total suspended solids, total alkalinity, pH, turbidity and other measures meet or exceed US EPA Safe Drinking Water Act and AWWA standards as of 2002. Nitrate/nitrite levels are within acceptable industry standard discharge limits.

**TABLE 13.
RESULTS OF WATER SAMPLES**

Analysis Project	Unit	Water Sample No.														
		PD01			HL02			HL03			HL04			PD05		
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
K ⁺	mg/l	1.2	1.1	1.1	0.8	0.8	0.8	0.6	0.6	0.6	0.8	0.8	0.8	1.7	1.7	1.7
Na ⁺	mg/l	3.0	3.0	3.0	6.0	6.0	6.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Ca ²⁺	mg/l	70.14	70.14	76.15	42.08	44.09	44.09	38.08	34.07	44.09	40.08	42.08	42.08	64.13	60.12	60.12
Mg ²⁺	mg/l	34.05	35.26	35.26	15.81	12.16	9.73	13.38	15.81	6.08	17.02	18.24	17.02	31.62	32.83	34.05
TFe	mg/l	<0.05	<0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fe ²⁺	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH ⁴⁺	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total	mg/l	108.4	109.5	115.6	64.7	63.0	60.6	53.1	51.5	51.8	59.9	63.1	61.9	99.4	96.7	97.9
Cl ⁻	mg/l	4.25	4.25	4.25	4.25	5.67	6.38	4.25	4.25	3.55	3.55	3.55	4.96	6.38	6.38	3.55
SO ₄ ²⁻	mg/l	140.4	151.2	147.2	28.00	28.40	28.24	12.96	13.12	13.04	25.20	25.44	16.40	92.00	90.80	92.40
HCO ₃ ⁻	mg/l	195.3	201.4	219.7	164.7	152.5	146.4	158.6	158.6	146.4	183.1	183.1	183.1	225.8	225.8	225.8
CO ₃ ²⁻	mg/l	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OH ⁻	mg/l	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NO ₃ ⁻	mg/l	8.01	7.6	6.83	7.35	7.30	0.87	1.39	2.94	2.63	2.91	1.17	1.14	<0.04	<0.04	1.17
NO ₂ ⁻	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.06	<0.004	<0.004	<0.004	<0.004	<0.004
HPO ₄ ²⁻	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total	mg/l	347.9	364.4	377.9	204.4	193.9	181.9	177.3	179.0	165.7	214.8	213.2	215.6	324.1	322.9	322.9

		Water Sample No.														
		PD01			HL02			HL03			HL04			PD05		
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Total Hardness	mg/l	315.3	320.3	335.3	170.2	160.1	150.1	150.1	150.1	135.1	170.2	180.2	175.2	290.3	285.3	290.3
Permanent hardness	mg/l	155.2	155.2	155.1	35.1	35.1	30.0	20.0	20.0	15.0	20.1	30.1	25.1	105.1	100.1	105.1
Temporary hardness	mg/l	160.1	165.1	180.2	135.1	125.1	120.1	130.1	130.1	120.1	150.1	150.1	150.1	185.2	185.2	185.2
Negative Hardness	mg/l	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total alkalinity	mg/l	160.1	165.1	180.2	135.1	125.1	120.1	130.1	130.1	120.1	150.1	150.1	150.1	185.2	185.2	185.2
Total soluble solids	mg/l	364.9	379.9	389.9	196.7	190.4	178.8	158.1	158.4	151.7	190.0	191.7	193.2	316.9	313.0	313.9
Insoluble CO ₂	mg/l	8.58	12.86	17.15	8.58	8.58	8.58	4.28	6.43	6.43	8.58	8.58	8.58	36.45	17.15	12.86
Oxygen consumption	mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H ₂ SiO ₃	mg/l	8.10	8.63	8.00	13.04	12.61	12.30	9.27	9.48	9.75	8.96	9.01	9.48	8.1	8.15	7.89
F	mg/l	0.82	0.74	0.79	0.22	0.22	0.22	0.10	0.10	0.10	0.11	0.11	0.11	2.08	2.06	2.08
Al	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
PH Value		7.5	7.6	7.1	7.9	7.7	7.8	7.7	7.8	7.8	7.8	7.9	7.8	7.7	7.5	7.6
Odor		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Chroma	Degree	< 5	< 5	10	< 5	10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Suspended Solids	NTU	0.9	2.2	1.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Water temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Air temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

12. DATA VERIFICATION

WGM visited the plant sites and reviewed the road status in November 2017. Accompanied by Mine Manager, Mr. Luo, and Finance Manager, Mr. Zhang Yuanting, WGM had a tour at the processing facility and office. WGM also requested to drive up to the mines as far as road condition allows to observe the haulage road condition and reconstruction progress. Access to the mines was not possible during this visit as roads still remained impassable as a result of heavier than normal rains. No new sampling was possible.

WGM interviewed the mine staff to document the details of the new underground pre-development drilling. The underground drill used is not a core drill and produce only core cuttings as the drill advances. The geological staff prepared a drill log of the cuttings as drilling proceeds and collected cuttings from the mineralized zone for visual inspection. Orientation readings are collected at the hole collar and recorded. Location data is entered onto the mine survey plans. The samples, which are thought to be high grade based on geologist's experience, would pass the visual inspection, and are sent to the internal company lab for assay testing. Cuttings from the mineralized zone that do not pass the visual inspection are discarded as are all cuttings from the footwall and hanging wall zones. No material is retained other than the digital record.

WGM QP's were unable to visit the mines to verify location of the drill holes but QP's have no reason to believe the results as presented by the company are not representative.

In July 2016 WGM previously also met with mine engineering and geological staff and management to review production statistics for Q1 and Q2 2016, and to review existing record keeping and QA/QC procedures (Figure 6 and Table 14). At that time, WGM also visited the processing facilities and noted that the new office building was now complete and staff had just started moving in.

Prior to that WGM had visited both the Cheng Qiang Yan and Shi Sun Xi sites in October 2015 to review the underground mining operations. The QP was satisfied with the production data provided and found no need for new sampling.

In July 2016, WGM met with mine engineering and geological staff and management to review production statistics for Q1 and Q2 2016, and to review existing record keeping and QA/QC procedures (see Figure 6). At this time, WGM also visited the processing facilities and noted that the new office building was now complete and staff had just started moving in. WGM did not examine the 2016 drill core nor visited the underground operations as the mine sites were not accessible due to the rainy season.

WGM visited both the Cheng Qiang Yan and Shi Sun Xi sites in October 2015 to review the underground mining operations, and the status of the current access roads.

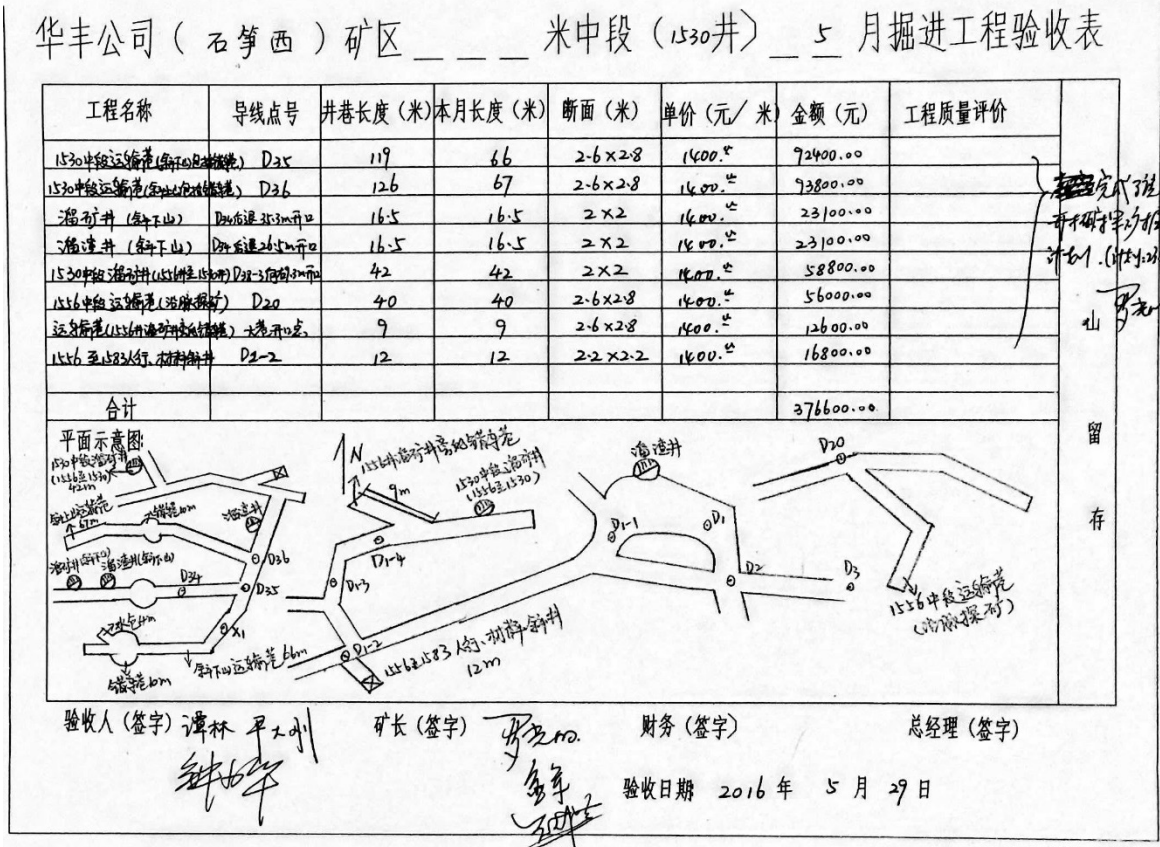


Figure 6. Example of a month end development report (Mine 2 Level 1530 May)

WGM had previously collected six independent verification samples, three from Mine 1 and three from Mine 2, during its November 2013 site visit (see Tables 7 and 8). Samples were collected to confirm the overall mining grade, rock density and range of oxide minerals as well as accessory minerals, as part of its Mineral Resource review and planning purposes and upgrading, modernization of operational standards and expansion at the two mine sites. These samples were analysed at SGS Tianjin Mineral Laboratory, Tianjin, PRC using standard analytical techniques for phosphate ores. The results of the analyses confirmed the general tenor of the grade and specific gravity of the ore as reported in the Chinese geological reports.

In November and December 2013, the Sichuan Institute of Geology and Mineral Development Geochemistry Team completed a program of sampling and assaying of Mine 1 primarily from the exploration levels below the current mine. The locations of the samples were detailed in Table 7. The samples were assayed for SrO, P₂O₅ and acid insolubles according to the standard Chinese protocols. The assay results confirm the historic reported phosphate grades and the quality of the phosphorite mineralization and are consistent with WGM independent sampling.

During previous site visits in 2013, 2014 and 2015, WGM personnel observed the various steps of this fully integrated Phosphate operation from mining through final processing. WGM reviewed development and mining practises at Mines 1 and 2 as well as mine access roads, mine site fixed facilities and discussed the operation of the new process plant. Details of these underground visits were presented in WGM's previous March 2016 technical report. WGM again toured the processing plant in July 2016, noting that the new office building had now also been completed. The mining sites were not visited as operations were suspended as usual, during the mid summer rainy season.

WGM was able to confirm in discussion with mine manager, Mr. Luo that development and production stoping was underway on 6 levels or wells at Mine 1, normally employing 130 contract miners at this underground operation. At Mine 2, there were 6 levels or wells under development employing an additional 130 contract miners for a total of 260 contract miners employed at the two mines. In addition to the contract miners on site there were the company staff, camp maintenance personnel, and contract truckers which reportedly brought the total manpower at the two mines to approximately 280 people, the plant manpower being extra.

However since the end of June 2017 when the mine access became impassable virtually all personnel have been evacuated from the mine sites.

Surface access to the upper (up faulted) phosphate bed at Mine 1 remains challenging due to the extremely steep topography. The feasibility study prepared for the permit conversion includes the construction of an access road to support future development and mining of this area.

The most recent mine visit to the mine site was in October 2015 which included New Well #1 at Mine 1 and 1709 Level at Mine 2. The WGM QP inspected the underground development, transportation system, and operation. The progress on ground control and transportation system was well noted. WGM was accompanied by Mr. Luo, Mine General Manager. WGM confirmed the rail system, which was observed as work in progress in previous visit, has been completed and is in service in the lowest level of the mine. The electricity powered hauling system was able to load ore and waste at dropping point inside the headings and transport material to ore bin and waste dump outside the portal effectively and efficiently. The dropping points inside the headings connect to ore passes that now connect most of the levels. This development replaced most of the cable tramways that were previously used as a main haulage system from each level. WGM also observed ramps and manways that connect levels. These developments allow personnel and equipment to access all level from underground and avoid exposure to hazardous environment, such as steep slopes and falling rocks along the mountain side. This is considered as a major improvement since the last visit. Also observed at Mine 1 are the improved ground control measures. The portal was reinforced with solid concrete structure; the fractured areas were supported with rock bolts,

mesh screen, steel arches with timber filling, and shotcrete. The quality of the ground support installation is above standard.

At Mine 2, similar transportation system, manways and ore passes were observed. No ground support was noticed due to better ground condition.

In addition to its current visit WGM had previously in 2014 toured the modern state-of-the-art 20,000 tonnes per annum P₄Plant at the new Gongxing industrial zone processing facility which was operating at steady state during the visit. Both of the 10,000 capacity furnaces were charged and operating. WGM paid special attention to the ore stockpile, crushing circuit and ore handling process. WGM observed the process of haulage truck weighting at the scale, tonnage and time being recorded and ore being dumped in designated stockpiles. It is also noted that grab samples were taken from each of the stockpiles as soon as the truck finishes unloading. The grab sampling procedure was observed to be up to standard. Two loaders were feeding ores from stockpiles to crushers during the visit, and the process was continuous without much interruption. The two stage crushing circuit was set up to batch process and to differentiate high grade, which is fed to the furnace, and low grade, which is stockpiled for sale to other factories.

WGM understands that an accident at the plant shutdown the processing operation temporarily in 2016. Following a thorough investigation by government inspectors, the accident was determined to be the result of an equipment design failure. This was immediately rectified and the plant resumed operations after a shutdown of approximately three weeks (see following links to press releases:

http://www.asiaphos.com/pdf/20161026_P4_Plant_AsiaPhos_Announcement.pdf

http://www.asiaphos.com/pdf/20161117_AsiaPhosLimited_P4Plant_Announcement.pdf

Operations in 2017 are reported to be accident free and during the 2017 site visit the main plant was operating in good order and WGM did not observe any safety violations.

WGM as part of its due diligence for previous Technical Reports has completed six previous site visits to both surface and underground facilities at Cheng Qiang Yan. Access to Shi Sun Xi was not possible in 2010 due to blockage of the access road but access to the new underground development adit was re-habilitated in November 2011. Extensive interviews were conducted with the personnel of Mianzhu Norwest. Interviews in 2010 were primarily focused on data handling procedures, data storage and data transfer among other items of importance. In 2010, WGM had also interviewed personnel of the Sichuan Institute of Chemical Engineering and Geological Exploration. WGM also inspected about 5% of the production quality control laboratory sheets and such files as were available that included all aspects of the data collected from the drill holes and trenches as well as individual interpretations resulting from those data.

WGM has continued its inspection of the mine sites, process plant and production data statistics on an annual basis as possible. Continued enhancements to data collection and reporting procedures have been noted and the mine personnel are actively working to implement further data collection and reporting procedures.

Normally, most technical field work and required reporting is conducted by the local Institutes. Both the Sichuan Institute of Chemical Engineering and Geological Exploration and the Coal Design & Research Institute of Sichuan Province, has many internal and external checks for data verification for each task being performed and protocols in place for rectifying any discrepancies. The same is true for the laboratory procedures employed by the 21st Laboratory of Chemical Geology and Mine of Sichuan Province. While internal laboratory procedures were not observed their processes are state regulated. Independent sampling by WGM has confirmed the quality of the results. WGM was satisfied that the information reviewed and presented reasonably reflects what was presented and observed and that analytical results are representative.

WGM also notes that verification of the west borderline of the Shi Sun Xi's mining license was in dispute until August 2005 due to an overlapping of the west boundary line of the Shi Sun Xi Phosphorite Mine and east boundary line of the Long Lin Phosphorite Mine. The resolution, in summary, moved the west boundary line of the Shi Sun Xi Phosphorite Mine, in parallel, 60 m towards the east. However, in the report "*Additional Exploration of Geological Report for Sichuan Mianzhu Norwest Phosphate Chemical Company Ltd (Shi Sun Xi Phosphorite Mine)*" submitted by Sichuan Institute of Chemical Engineering and Geological Exploration in October, 2005, the phosphorite reserves that were reported were still based on the previous boundary line definition.

The report entitled "*Additional Exploration of Geological Report for Sichuan Mianzhu Norwest Phosphate Chemical Company Ltd (Shi Sun Xi Phosphorite Mine)*" was submitted by Sichuan Institute of Chemical Engineering and Geological Exploration in October, 2005 which contained a "reserves summary" (resources) developed using PRC standards of classification. The reference above indicates an incorrect western boundary line was used in this estimation.

WGM notes that China has recently converted its geodetic base from Beijing 1954, to Xian 1980. This has resulted in some minor shifts for some of the maps, therefore care must be taken not to transfer data from older maps to newer maps without appropriate conversions.

13. MINERAL PROCESSING AND METALLURGICAL TESTING

Historical evidence of previous mineral processing and/or metallurgical testing for this property is limited. In a report (1998) on the Cheng Qiang Yan property, the Sichuan Institute of Chemical Engineering and Geological Exploration indicated that little or no testing had been completed in the preparation of their report. The report stated that, for the Cheng Qiang Yan property, “the mineral type is called “Shi Fang Type”, which has been discovered and processed for over 40 years. The processing industry has considerable processing experience on handling this type of mineralization, and based on these experiences, the product from this site can be directly used as chemical reagents or fertilizer”.

A similar reference to historical metallurgical testing was found in the data (Coal Design & Research Institute of Sichuan Province-2006) presented for the review of the Shi Sun Xi property. The phosphorite mine is of the “Shi Fang Type” (the ore in the mine belongs to “Shi Fang Type” phosphorite mine) and has claimed over 40 years history from prospecting to exploitation and has accomplished a lot of research and testing work on mineral processing and utilization. Based on the current situation that the phosphate fertilizer plants and yellow phosphorus plants both in and out of the province make direct use of the phosphate rock, the phosphate rock in this mine is similar to other ore types, which can be directly used in fertilizer or in chemical engineering material processing”.

The mining operations at Cheng Qiang Yan, under the administration of Mianzhu Norwest, produced, from 2002 until the Wenchuan Earthquake, a total of approximately 379,000 tonnes of phosphate rock that were fed to the electric furnace operations at Hanwang Town Mianzhu City to produce elemental phosphorous (P_4). This operating history demonstrated that end products (P_4 , and related) can be produced economically and competitively with this type of operation. Since the earthquake the processing plants were re-located to a new industrial park and the company has installed their new modern facilities. Since access to Cheng Qiang Yan was re-established in 2010 until the end of 2017 the two mines have produced approximately **1,182,270** dry metric tonnes (“dmt”) of ore.

Production records that survived the Wenchuan Earthquake constitute coverage of about 80% of the approximately 183,000 tonnes produced, from mining operations at Cheng Qiang Yan, between 2006 and the Wenchuan Earthquake. This surveyed tonnage averaged about 29.6% P_2O_5 and 2.9% Fe_2O_3 (dry) no other analytes were tracked through these quality control measures at that time. The average size of each of these quality control samples represented about 148 tonnes of mine production. The average moisture content of each of these samples was about 4.6% H_2O .

Two composites from the samples collected by WGM in November 2013 returned arsenic (As) results of 16 and 30 ppm for the Cheng Qiang Yan and Shi Sun Xi respectively.

Whole rock and trace element analytical results reported by the bureau in their August 2014 report indicated an arsenic content in the range of 7.7-22.2 ppm for the Cheng Qiang Yan mine consistent with WGM's findings.

Average grades for 2016 are 30.56% P₂O₅, 1.47% Fe₂O₃, 0.0012% As (12 ppm) and a water content of 2.53% H₂O. Reported average grades for 2017 are 30.15% P₂O₅ and 2.48% H₂O. No data are available for iron or arsenic content in 2017 but the results for 2016 can be considered indicative for 2017.

The current continued production of P₄, should be considered a successful metallurgical demonstration for this processing option.

14. MINERAL RESOURCE ESTIMATES

14.1 GENERAL

The two phosphorite deposits controlled by Mianzhu Norwest contain, as of December 31, 2017, an estimated Measured and Indicated ("M&I") Resources of 14.0 million in situ tonnes, at a grade of 29.04% P₂O₅ under mining licenses. A further 7.6 million in situ tonnes of M&I Resources at a grade of 25.19% P₂O₅ are controlled under exploration licenses on the two properties. The Inferred Resources are estimated to total 1.0 million in situ tonnes, at a grade of 29.40% P₂O₅ under the mining licenses and an inferred 3.0 million in situ tonnes are estimated under the exploration licenses at a grade of 24.98% P₂O₅. These estimates used are compliant with CIM standards.

In keeping with the practice of USGS Bulletin 1450-B, Bulletin 831 and Bulletin 891, for these types of mineral deposits and by NI 43-101 standards, WGM has applied the following parameters to its Mineral Resource/Reserve definitions for this Technical Report in addition to CIM definitions.

Mineral Resources

All phosphate bearing material with a P₂O₅ content greater than 8% and a thickness greater than 25 cm are considered. Primary focus is concerned with phosphorite bed D₃S¹ on both Mianzhu Norwest's properties. For the two deposits, no outcrop barriers, no boundary buffers, no buffers along faults, no areas of past minor production, and no areas of low-quality or thin material were omitted from the Resource estimates.

Mineral Reserves

The company has completed more than three full years of mining operations at 31 December 2107, since its listing on the SGX Catalist board. Based on its review of production records and capital and operation cost from 2014, 2015 2016 and 2017, WGM was of the opinion that Mineral Resources in the immediate vicinity of exploration and development drifts currently being mined and included in the AsiaPhos Cheng Qiang Yan and Shi Sun Xi mine plan for the period 2018 through 2020 can be upgraded to reserves. This is reflected in the Mineral Reserve estimates that follow.

These reserves are limited to mineralization exposed in underground adits within a maximum distance of 50 m of existing sample points and are limited to those resources outlines in the company's mine plan and targeted for extraction from the respective levels during the next three years.

Conversion of other Mineral Resources to Mineral Reserves is contingent on additional underground exploration, preferably using underground diamond core drilling and the

completion of a unified database integrating all underground exploration, development and grade control sampling and surface trench and drill data.

Measured Resources

For the Cheng Qiang Yan deposit, where continuity has been established, those tonnes found within 400 m of a sampling point whether it is a drill hole or a trench is categorized as Measured. The 400 m radius provides a maximum area around each sample point of 50.92 hectares.

For the Shi Sun Xi deposit, where the continuity is much less well established, the radius was set at 200 m which provides a maximum area around each sample point of 12.57 hectares that contain tonnes of this category. This conservative approach to the Shi Sun Xi deposits does not alter the total estimated tonnage of the deposit but reduces the Resource tonnage considered Measured on a partially explored/defined and geologically complex property. The definition used as a basis for the above specifies that the true extent of the phosphate has been sufficiently measured so that the estimated tonnage is judged to be accurate within 20% of the true tonnage.

Indicated Resources

These tonnages are computed partly from specified measurements and partly from projection of data to a reasonable distance. The recommended maximum projection distance is 800 m for Cheng Qiang Yan deposit and 500 m for the less well defined, and more geologically complex, Shi Sun Xi deposit. Thus, for the Cheng Qiang Yan deposit, the Indicated tonnages fall into a belt that is from 400 m to 800 m around a sampling point. For the Shi Sun Xi deposit, this belt is from 200 m to 500 m around a sampling point.

Inferred Resources

The classification of these tonnages is based largely on broad knowledge of the geologic character of the deposit (bed) and where few measurements are available. The estimates are based primarily on assumed continuation of Indicated areas from which there is geologic evidence. At Shi Sun Xi, the Inferred tonnage is beyond the 500 m radius that defines the Indicated tonnage. Due to the relatively dense sampling at Cheng Qiang Yan, and the updated geological interpretation there are now no Inferred resources.

The estimated Resources for the two properties are further divided based on the ramifications of restrictions contained within the mining and exploration licenses of each. The mining license for the Cheng Qiang Yan deposit restricts control of the resource to elevations between 2,570 and 2,240 m. The mining license for the Shi Sun Xi deposit restricts control to elevations between 2420 and 1,600 m. The exploration license for Cheng Qiang Yan contains no restrictions based on elevations of the phosphorite bed. The same is true for the Shi Sun Xi exploration license.

Within each of the definitions presented above, there are categories, or levels of definition, which depend upon the density of sampling points used to examine the property and quantify the tonnage. These categories are, in decreasing sample-point density (increased sample spacing).

14.2 DEFINITIONS

The classification of Mineral Resources and Mineral Reserves used in this report conforms with the definitions of the Canadian Institute of Mining Metallurgy and Petroleum ("CIM") Council adopted on May 10, 2014. We have followed the guidelines and standards provided in the final version of National Instrument 43-101, which first came into effect on February 1, 2001, was revised on December 11, 2005, and further changed effective June 30, 2011. We further confirm that, in arriving at our classification, we have followed the relevant definitions for the CIM Standards/NI 43-101, as follows:

A **Mineral Resource** is a concentration or occurrence of diamonds, natural solid inorganic, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.

An **Inferred Mineral Resource** is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

An **Indicated Mineral Resource** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

A **Measured Mineral Resource** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

A **Mineral Reserve** is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.

A **Probable Mineral Reserve** is the economically mineable part of an Indicated and, in some circumstances, a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.

A **Proven Mineral Reserve** is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.

The previous Mineral Resource estimates prepared for each of Mianzhu Norwest's Mines used data from each of the properties presented for review. WGM cross checked, and verified data from all known sources available. A portion of the original data was lost in the destruction caused by the Wenchuan Earthquake and other data was "lost" in the archives of the institution that performed most of the field programs and wrote historical reports for the two properties. These missing data were not included in the Resource estimate.

The estimation of the updated Resources used routines from Geovia's GEMS 6.7 software and are described in Section 14.3.

Other computer model design criteria are as follow, and are unchanged from the previous estimate methodology:

- Phosphorite Density – A constant 3.08 tonnes per cubic metre was used for Cheng Qiang Yan and 3.03 tonnes per cubic metre used for Shi Sun Xi; these are the same as for all past studies conducted and are supported by reports and WGM's recent 2013 sampling (six samples) that showed a specific gravity range from 2.97 to 3.18 g/cm³. The 2014 results from 30 samples tested by the Bureau ranged from 2.88-3.42 g/cm³ with similar averages;
- Minimum Phosphorite Bed Thickness – 0.25 m; estimates by past PRC work use a minimum thickness of 1.6 m; (Thicknesses ranged from 0.67 m to 13.84 m);
- Phosphorite Subcrops – None were used. The geological history for the Shi Fang type deposit dictates that all weathering phenomena were emplaced millions of years ago and no recent activity accounts for changes;
- Phosphorite Analyses – The data which are contained in individual sample analyses contained in the dataset for each property are limited. The past PRC estimates used various grade cutoffs at various times all dictated by Provincial guidelines although; such

cutoffs are not geologically warranted. WGM applied an effective 8% P₂O₅ cutoff basis (resource polygon grades ranged from 17.77% to 35.39%); and,

- Outside Estimate Boundary – The mining license boundary and the exploration license boundary are used for each property.

Table 14 presents the updated M&I Mineral Resource estimate for each property as prepared by WGM for Mianzhu Norwest's license holdings. This resource estimate was based on data available as of December 31, 2017. WGM has not incorporated data received subsequently. Average bed thickness and average P₂O₅ content are weight averaged by tonnes from the various applicable polygons resulting from the estimating process.

TABLE 14.
TOTAL ESTIMATED M&I PHOSPHORITE RESOURCES FOR MIANZHU NORWEST

		Tonnes (million)	Bed Thk (m)	P ₂ O ₅ (%)
<u>Mining License Area</u>				
Cheng Qiang Yan				
M & I Resource	Measured	2.7	5.91	28.18
	Total	2.7	5.91	28.18
Shi Sun Xi				
M & I Resource	Measured	6.5	6.87	29.35
	Indicated	4.8	5.24	29.09
	Total	11.3	6.17	29.24
Total				
M & I Resource	Measured	9.2	6.59	29.01
	Indicated	4.8	5.24	29.09
	Total	14.0	6.12	29.04
<u>Exploration License Area</u>				
Cheng Qiang Yan				
M & I Resource	Measured	7.0	6.23	25.60
	Total	7.0	6.23	25.60
Shi Sun Xi*				
M & I Resource	Measured	0.03	1.37	19.76
	Indicated	0.5	1.58	20.03
	Total	0.5	1.57	20.02
Total				
M & I Resource	Measured	7.1	6.20	25.57
	Indicated	0.5	1.58	20.03
	Total	7.6	5.89	25.19

Notes: Mineral Resources effective December 31, 2017.

1. WGM Senior Associate Industrial Mineral Specialist, Donald Hains, is the Qualified Person for this Mineral Resource estimate.
2. Mineral Resources are estimated at a cutoff value of 8% P₂O₅ (based on a price of US\$ 60/t P₂O₅), and a minimum phosphorite bed thickness of 0.25 m.
3. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.
5. The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May 10, 2014.
6. S.G. of 3.08 tonnes/m³ and 3.03 tonnes/m³ used for Cheng Qiang Yan and Shi Sun Xi respectively.
7. Indicated amounts may not precisely sum due to rounding.
8. Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.
9. Previous Mineral Resource estimate update was prepared 31 December 2016.
10. Mineral Reserves are in addition to estimates of Mineral Resources.

As a result of the notice of non-renewal for the Mine 1 permit WGM has also restated the estimates without the Mine 1 mineral resources (Table 15).

TABLE 15.
RESTATED TOTAL ESTIMATED M&I PHOSPHORITE RESOURCES
FOR MIANZHU NORWEST (without Mine 1)

		Tonnes (million)	Bed Thk (m)	P ₂ O ₅ (%)
<u>Mining License Area</u>				
Shi Sun Xi				
M & I Resource	Measured	6.5	6.87	29.35
	Indicated	<u>4.8</u>	<u>5.24</u>	<u>29.09</u>
	Total	11.3	6.17	29.24
Total				
M & I Resource	Measured	6.5	6.87	29.35
	Indicated	<u>4.8</u>	<u>5.24</u>	<u>29.09</u>
	Total	11.3	6.17	29.24
<u>Exploration License Area</u>				
Shi Sun Xi*				
M & I Resource	Measured	0.03	1.37	19.76
	Indicated	<u>0.5</u>	<u>1.58</u>	<u>20.03</u>
	Total	0.5	1.57	20.02
Total				
M & I Resource	Measured	0.03	1.37	19.76
	Indicated	<u>0.5</u>	<u>1.58</u>	<u>20.03</u>
	Total	0.5	1.57	20.02

Notes: Mineral Resources effective February 28, 2018 (assuming exploration permit will not be renewed.)

1. WGM Senior Associate Industrial Mineral Specialist, Donald Hains, is the Qualified Person for this Mineral Resource estimate.
2. Mineral Resources are estimated at a cutoff value of 8% P₂O₅ (based on a price of US\$ 60/t P₂O₅), and a minimum phosphorite bed thickness of 0.25 m.
3. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.
5. The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May 10, 2014.
6. S.G. of 3.08 tonnes/m³ and 3.03 tonnes/m³ used for Cheng Qiang Yan and Shi Sun Xi respectively.
7. Indicated amounts may not precisely sum due to rounding.
8. Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.
9. Previous Mineral Resource estimate update was prepared 31 December 2017.
10. Mineral Reserves are in addition to estimates of Mineral Resources.

WGM adjusted the resources previously reported for 2016 to reflect the mineral resources extracted in 2017. No material changes to the measured and indicated mineral resources for the Cheng Qiang Yan mining Licences and exploration permit areas are reported for 2017. Indicated and Inferred tonnages within the Shi Sun Xi exploration permit were significantly reduced (53% and 77% respectively) as a result of incorporating 2017 underground drilling results in the mineral resource estimate. Corresponding resources within the mining permit were only moderately affected. Estimates by the Chinese the geological bureau based on preliminary data show mineralized volumes consistent with WGM's previous estimates for 2015. WGM has not incorporated preliminary 2016 and 2017 exploration results for the Shi Sun Xi mining and exploration permits as the available data is incomplete and not suitable for

inclusion in the resource model at this time, however as noted above no material changes are anticipated.

Table 16 presents the Inferred Resources estimate for the Shi Sun Xi property as prepared by WGM for Mianzhu Norwest's license holdings. This resource estimate was based on data available as of December 31, 2017. WGM has not incorporated data received subsequently. While the nature of the incomplete preliminary data provided to WGM was not deemed suitable for inclusion in its resource database. Unsampled or unreported data however, if included as zero by WGM have negatively impact the inferred mineral resources. These results will also affect the average bed thickness and average P₂O₅ content and resulting tonnes from the various applicable polygons resulting from the estimating process for the inferred mineral resources. Details of the updated resource estimate for each zone are tabulated in Appendix 2.

TABLE 16.
ESTIMATED INFERRED* PHOSPHORITE RESOURCES FOR
MIANZHU NORWEST

		Tonnes (million)	Bed Thk (m)	P ₂ O ₅ (%)
<u>Mining License Area</u>				
Shi Sun Xi	Inferred	<u>1.0</u>	<u>5.12</u>	<u>29.40</u>
Total		1.0	5.12	29.40
<u>Exploration License Area</u>				
Shi Sun Xi**	Inferred	<u>3.0</u>	<u>3.96</u>	<u>24.98</u>
Total		3.0	3.96	24.98

* Note: Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.

** refers to the reduction of Inferred resources for the mine 2 exploration permit as a result of exploration results from 2016/2017.

Table 17 presents the summary of the Mineral Resources/Reserves for Mianzhu Norwest Mines.

As a result of the notice of non-renewal for the Mine 1 permit, WGM has also restated the estimates without the Mine1 mineral resources (Table 18).

TABLE 17.
SUMMARY OF THE MINERAL RESOURCES/RESERVES FOR MIANZHU NORWEST MINES

Category	Mineral Type	Gross Attributable to licence		Net Attributable to Issuer Assumed at 100%			Remarks
		Tonnes (millions)	Grade (P ₂ O ₅ %)	Tonnes (millions)	Grade (P ₂ O ₅ %)	Change from previous update ⁸ (%)	
Reserves							
Proven	Phosphorite	0.9	27.73	0.9	27.73	-18	-200k tonnes
Probable	Phosphorite	0.5	27.11	0.5	27.11	0	
Total		1.4	27.50	1.4	27.50	-13	
Resources							
Measured	Phosphorite	16.2	27.51	16.2	27.51	-2	+200k tonnes
Indicated	Phosphorite	<u>5.3</u>	<u>28.22</u>	<u>5.3</u>	<u>28.22</u>	-53	-6M tonnes
Total		21.6	27.69	21.6	27.69	-1	
Inferred*	Phosphorite	4.0	26.09	4.0	26.09	-77	-13.8M tonnes

* refers to the reduction of Inferred resources for the mine 2 exploration permit as a result of exploration results from 2016/2017.

Notes: Mineral Resources and Reserves effective December 31, 2017.

1. WGM Senior Associate Industrial Mineral Specialist, Donald Hains, is the Qualified Person for this Mineral Resource/Reserve estimate.
2. Mineral Resources are estimated at a cutoff value of 8% P₂O₅ (based on a price of US\$60/t P₂O₅), and minimum phosphorite bed thickness of 0.25 m.
3. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.
5. Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum standards on Mineral Resources and Reserves, definitions and guidelines prepared by the CIM Standing Committee on Reserve Definitions, adopted by CIM Council May 10, 2014.
6. S.G. of 3.08 tonnes/m³ and 3.03 tonnes/m³ used for Cheng Qiang Yan and Shi Sun Xi respectively.
7. Indicated amounts may not precisely sum due to rounding.
8. Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.
9. Previous Mineral Resource estimate update was prepared 31 December 2016.
10. The decreased tonnages in the Measured and Indicated categories are attributed to the upgrading of portions of the resources to the Mineral Reserve category, and to a lesser extent, depletion due to ongoing mining. Note that Mineral Reserves are being reported for the first time for these mines, under NI 43-101 Standard.
11. Estimated Mineral Resources reported are in addition to Mineral Reserves.

TABLE 18.
RESTATED SUMMARY OF THE MINERAL RESOURCES/RESERVES FOR MIANZHU NORWEST MINES (WITHOUT MINE 1)

Category	Mineral Type	Gross Attributable to licence		Net Attributable to Issuer Assumed at 100%			Remarks
		Tonnes (millions)	Grade (P ₂ O ₅ %)	Tonnes (millions)	Grade (P ₂ O ₅ %)	Change from previous update ⁸ (%)	
Reserves							
Proven	Phosphorite	0.2	27.28	0.2	27.28	-83	-945k tonnes
Probable	Phosphorite	<u>0.5</u>	<u>27.11</u>	<u>0.5</u>	<u>27.11</u>	0	
Total		0.7	27.16	0.7	27.16	-13	
Resources							
Measured	Phosphorite	6.5	29.31	6.5	29.31	-2	-9.5M tonnes
Indicated	Phosphorite	<u>5.3</u>	<u>28.22</u>	<u>5.3</u>	<u>28.22</u>	-53	-6M tonnes
Total		11.9	28.82	11.9	28.82	-1	
Inferred*	Phosphorite	4.0	26.09	4.0	26.09	-77	-13.8M tonnes

* refers to the reduction of Inferred resources for the mine 2 exploration permit as a result of exploration results from 2016/2017.

Notes: Mineral Resources and Reserves effective February 28, 2018 (assuming exploration permit will not be renewed.)

1. WGM Senior Associate Industrial Mineral Specialist, Donald Hains, is the Qualified Person for this Mineral Resource/Reserve estimate.
2. Mineral Resources are estimated at a cutoff value of 8% P₂O₅ (based on a price of US\$60/t P₂O₅), and minimum phosphorite bed thickness of 0.25 m.
3. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.
5. Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions, adopted by CIM Council May 10, 2014.
6. S.G. of 3.08 tonnes/m³ and 3.03 tonnes/m³ used for Cheng Qiang Yan and Shi Sun Xi respectively.
7. Indicated amounts may not precisely sum due to rounding.
8. Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.
9. Previous Mineral Resource estimate update was prepared 31, December 2017.
10. The decreased tonnages in the Measured and Indicated categories are attributed to the upgrading of portions of the resources to the Mineral Reserve category, and to a lesser extent, depletion due to ongoing mining. Note that Mineral Reserves are being reported for the first time for these mines, under NI 43-101 Standard.
11. Estimated Mineral Resources reported are in addition to Mineral Reserves.

Under NI 43-101 criteria, only Resources under the M&I classification may be considered for inclusion into any mine planning efforts which are required to possibly elevate the categorization of that material to **Reserve** status. The demonstration of economic viability of the tonnage and processes must be established before the category of reserves is used. No Inferred Resources may be included in these efforts.

This document is the reporting of phosphorite Resources only. No associated mining, metallurgical, economic, marketing or environmental studies have been referenced in the preparation of these Resources. The further conversion of the phosphorite Resource to Reserves will require closer spaced drilling and sampling to more accurately define the deposit boundaries and thicknesses as well as the grades. This conversion must be supported by the application of economic factors and mining factors to define the cutoff grade for the portion of phosphorite Resource that is economic and can be classified as reserves. The Mianzhu Norwest mining operation currently operates with very localized knowledge of grade and thickness based on progressing from the active mining areas. This operating practice can be exposed to changes in grade or production due to geologic factors that may change as the mining is advanced putting production plans at risk. Based on the history to date of the Mianzhu Norwest operations, WGM believes that completion of the necessary drilling and sampling will be successful in conversion of a high proportion of the remaining resources being classified as reserves after application of the modifying factors.

Although the WGM Mineral Resource estimates are based on one continuous mineralized zone across the licensed areas, it is possible that more complete knowledge of the phosphorite bed thickness and local structure could result in increased or decreased Resources to those currently estimated.

Further development efforts which may include underground development to allow drilling and sampling, are required to elevate the Inferred Resources, or any portion thereof, to the Measured and Indicated categories. This work may take place any time in the future as dictated by Mianzhu Norwest's long-term business planning.

14.3 CHENG QIANG YAN AND SHI SUN XI RESOURCE ESTIMATION **METHODOLOGY**

For estimating the phosphorite Resources on Mianzhu Norwest's Mines, WGM utilized the software routines contained within the GEMS module (version 6.7) distributed and maintained by Geovia. GEMS permits the management of drill hole data and other measurement information to create plots, maps, model surfaces and solids, and employ sophisticated geostatistics to quantify, visualize and analyze mineral deposits. It places data points into a transformed space in which the correct spatial relationship is maintained for analysis and interpolation purposes. It then transforms the estimates back into their original space.

For each of the two Mianzhu Norwest Mines, WGM followed a stepwise progression through the GEMS software to manage the data, and the project, while developing a computer model for both Cheng Qiang Yan and Shi Sun Xi. The models are a 3D representation of the geology for each site and the interactions of the geology with the mining and exploration licenses. The steps followed, in general, the grouping of activities outlined below:

Project Setup

Project setup with data “workspaces” for the following data elements:

- Polylines (for topography contours, license boundaries, faults, surface outcrops);
- Polygons (for polygonal estimates);
- Wireframes (for faults, topography, mining and exploration license boundaries); and
- Point Areas (for surface trench, drill hole, and underground channel samples).

Data Import and Validation

- Topography contours (digitized from supplied drawings) imported into Polyline workspace;
- Trench locations and drill hole intercepts imported as points into Point Area workspace; and
- Fault lines, surface outcrops and license boundaries imported to Polyline workspace.

Wire-framing

- Solids generated from license boundaries – mine licenses extended to vertical limits as defined. Exploration licenses extended in vertical to deepest extent of seam;
- Topography surface generated from digitized topography contours; and
- Fault lines projected from surface downwards according to strike and dip and fault. Fault surface generated from two lines. In the case of Shi Sun Xi, no attitude data was available for fault F14, so was assumed to be vertical fault.

Inclined Plane Generation

- Fault lines and surface outcrops projected to 3D topography surface; and
- Best-fit inclined plane generated from surface outcrop lines, trench locations, underground channel samples, and drill hole locations.

Geostatistics

Variograms were generated for each deposit to determine if grade distribution trends exist. Currently there are insufficient data to produce meaningful conclusions about sample dependence at either deposit. Consequently, general rules of sample dependence, based on the aforementioned U.S.G.S. Bulletins and years of world-wide experience with sedimentary phosphorite deposits, were used. Basic statistics run on composite sample population and the sample frequency distribution curves are presented in Figures 7 and 8.

Although there is a slight bi-modal distribution in both cases (Table 19), the relatively low coefficient of variation suggests that no high grade capping is required at this stage.

TABLE 19.
BASIC STATISTICS OF COMPOSITES

Mine	Number of Composites	Minimum (P ₂ O ₅ %)	Maximum (P ₂ O ₅ %)	Mean (P ₂ O ₅ %)	Coefficient of Variation
Mine 1	50	5.87	36.35	28.39	0.19
Mine 2	13	17.77	32.25	27.70	0.15

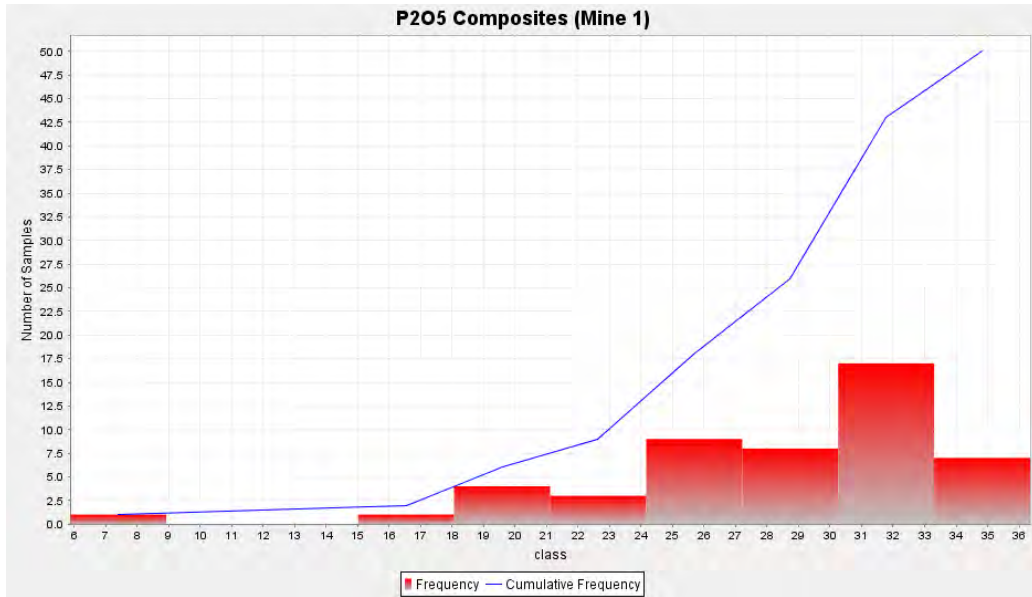


Figure 7. Cheng Qiang Yan Frequency Distribution Curve

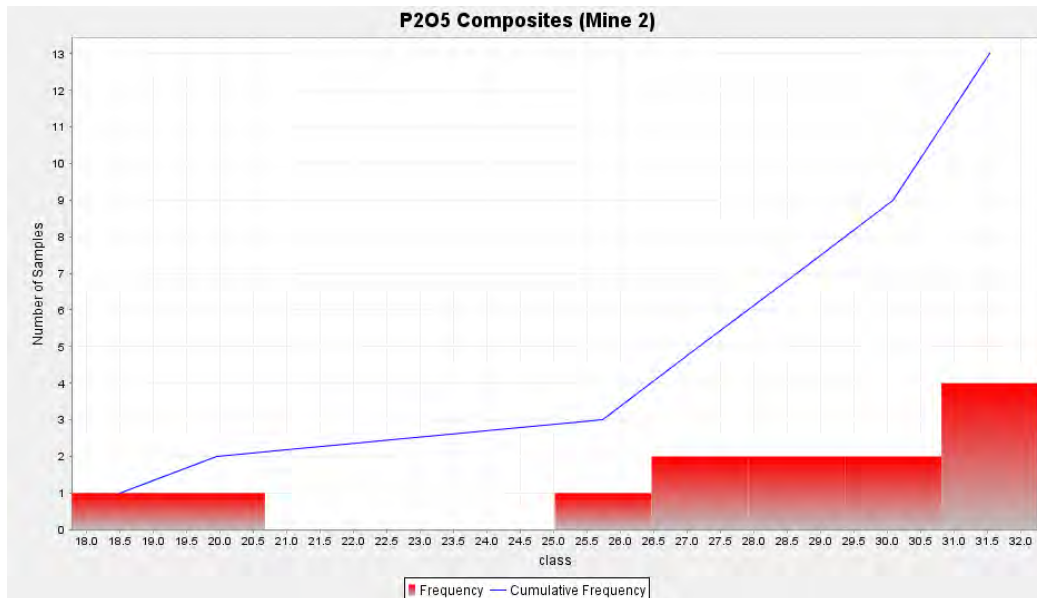


Figure 8. Shi Sun Xi Frequency Distribution Curve

Polygonal Modelling

- License-boundary polygons were generated by intersecting license boundary wireframes with inclined planes. Mine license boundaries were clipped at surface, and below the lowest allowable elevation as follows:

Cheng Qiang Yan: maximum depth 2,240 m

Shi Sun Xi: maximum depth 1,600 m

- Grade polygons were generated from trench samples, underground channel samples and drill hole intercepts, and projected to inclined plane. Polygons for “Measured”, “Indicated” and “Inferred” categories generated as per the following polygon radii of influence:

	<u>Measured</u>	<u>Indicated</u>	<u>Inferred</u>
Cheng Qiang Yan	400 m	400 m to 800 m	>800 m
Shi Sun Xi	200 m	200 m to 500 m	>500 m

- Final resource polygons were generated by clipping grade polygons against the license boundaries.

Density

As previously described, the bulk density for each deposit was determined by the Geological Institute based on at least 16-30 sample measurements per property.

- Constant densities for all rock were coded as follows:
 Cheng Qiang Yan: 3.08 tonne/m³
 Shi Sun Xi: 3.03 tonne/m³

Density determinations by WGM in March 2014 on six samples, 3 from Mine 1 and 3 from Mine 2 confirm these density averages.

Mineral Resource Estimate Summary

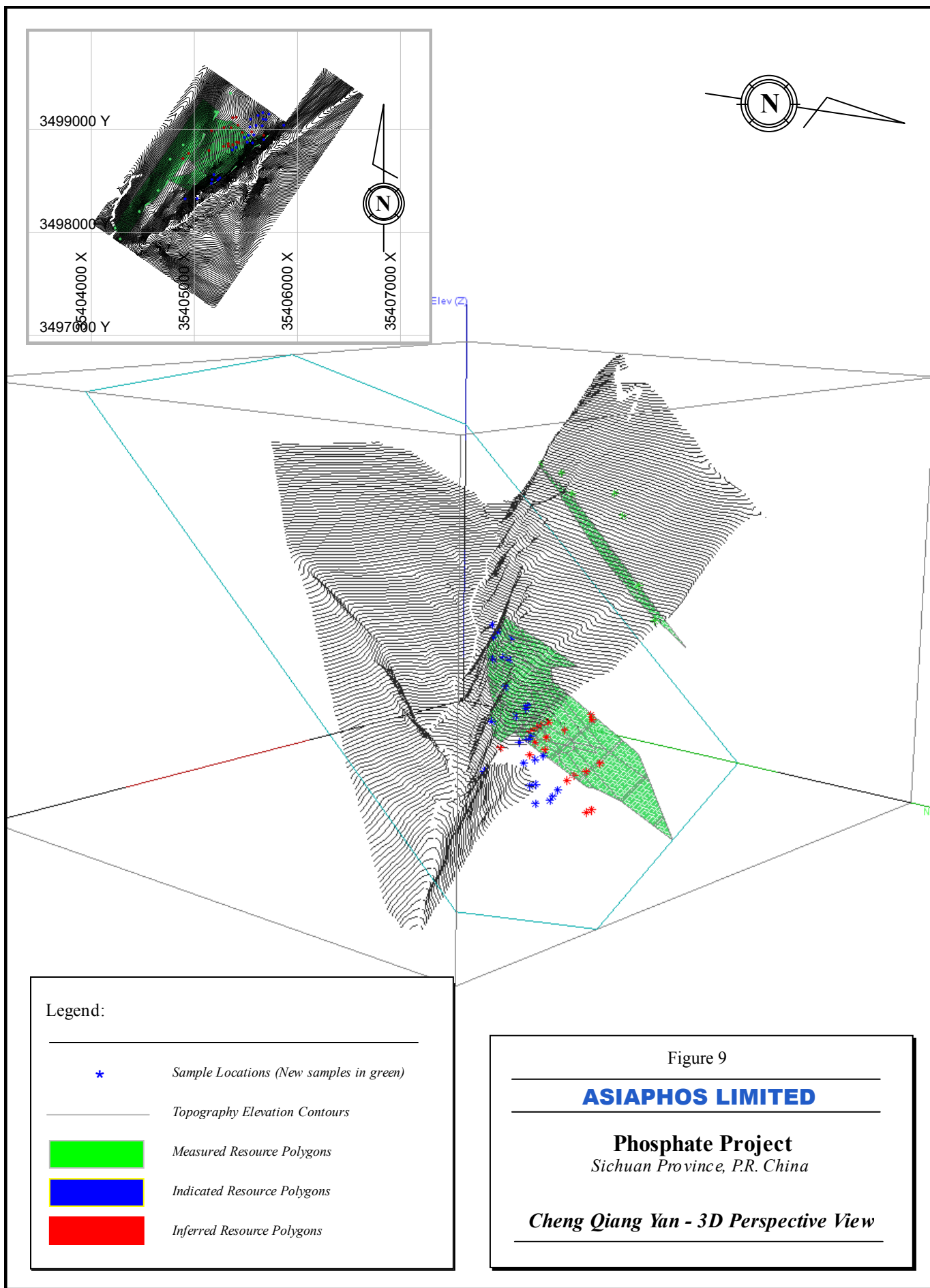
Since the specific locations of mined material (2014 through 2016) were not detailed, the amounts subtracted from the Measured and Indicated Resources of the Cheng Qiang Yan and Shi Sun Xi deposits were done so proportional to the tonnes in each category. The total tonnes in the Inferred category are unchanged.

Similarly, Mineral Reserves for both deposits were deducted proportionally from the Measured and Indicated tonnes only.

The phosphorite Mineral Resource estimates for the Cheng Qiang Yan and Shi Sun Xi deposits are presented, in various formats, on the table in the Summary, Tables 14, 16 and 17 and restated Tables 15 and 18 in Section 14 of this Technical Report.

For presentation of the computer models and their results, a series of six figures have been prepared for inspection. These figures, with brief explanations, are:

- Figure 9 Cheng Qiang Yan -- Perspective View; this Figure presents a 3D perspective view of the topography, sampling points and license boundaries for the Cheng Qiang Yan deposit;
- Figure 10 Shi Sun Xi -- Perspective View; this Figure presents a 3D perspective view of the topography, sampling points and license boundaries for the Shi Sun Xi deposit. The view is to the NE showing the outcrop, the dip of the phosphorite bed, the sample locations and the radii used for determining the Resource classifications;
- Figure 11 Cheng Qiang Yan -- Resource Polygons; This view to the east shows the phosphorite bed outcrop, the trenches and other sample locations as well as the mining and exploration license boundaries. It also shows the Resource polygons which have been truncated at the phosphorite bed outcrop. Note that many of the sample locations are outside the mining license boundary as these samples were taken from operations involved with gaining access to the licensed area. Using this Figure, what is shown on Figure 11 may become more clear; and
- Figure 12 Shi Sun Xi -- Resource Polygons; This Figure, with South to the top of the page shows the Resource polygons which have been truncated at the boundaries of the mining and exploration licenses. The phosphorite bed outcrop is toward the top of the Figure.



Legend:

- * *Sample Locations (New samples in green)*
- Topography Elevation Contours*
- Measured Resource Polygons*
- Indicated Resource Polygons*
- Inferred Resource Polygons*

Figure 9

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Phosphate Project
Sichuan Province, P.R. China

Cheng Qiang Yan - 3D Perspective View

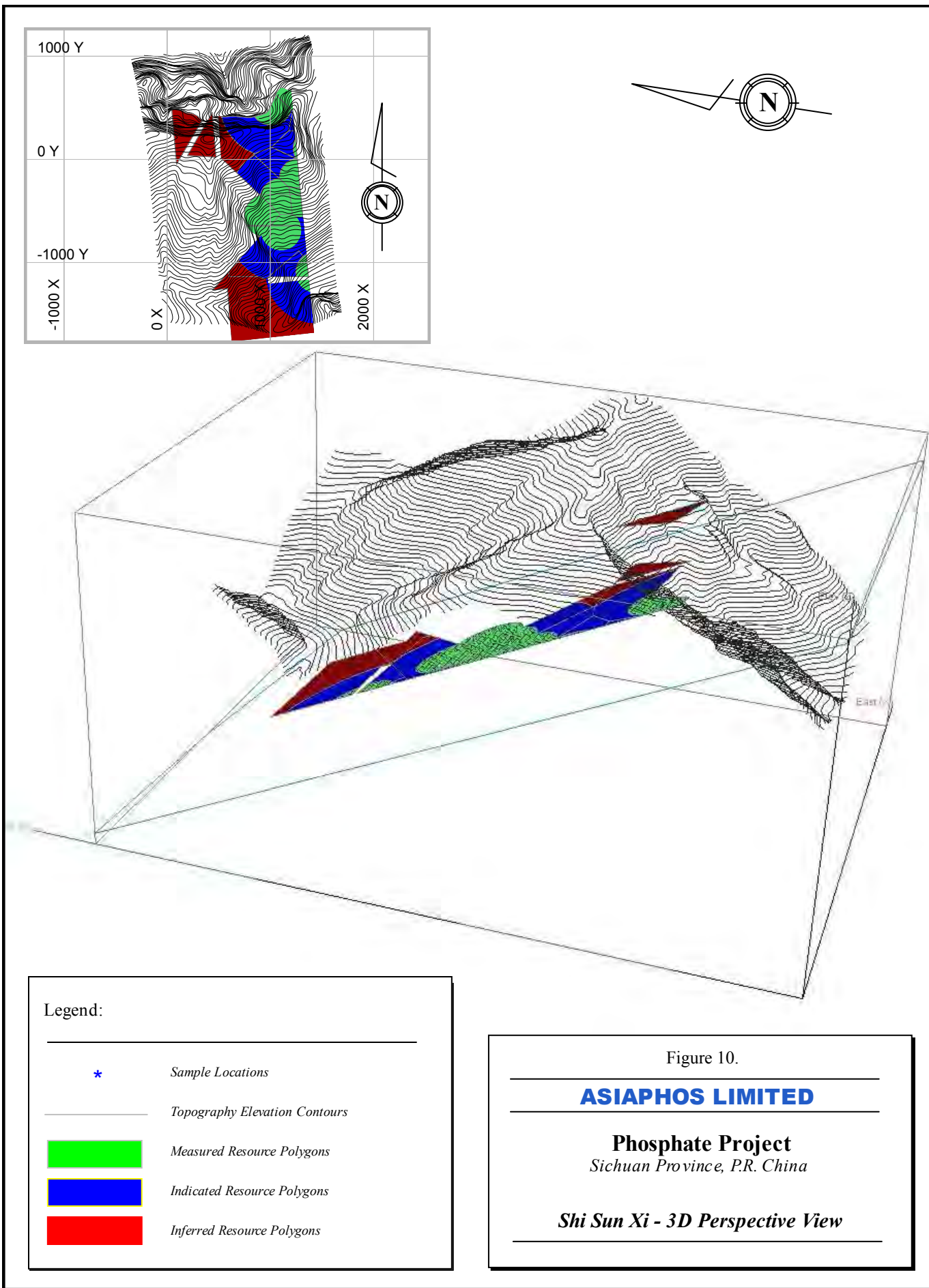


Figure 10.

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Phosphate Project
Sichuan Province, P.R. China

Shi Sun Xi - 3D Perspective View

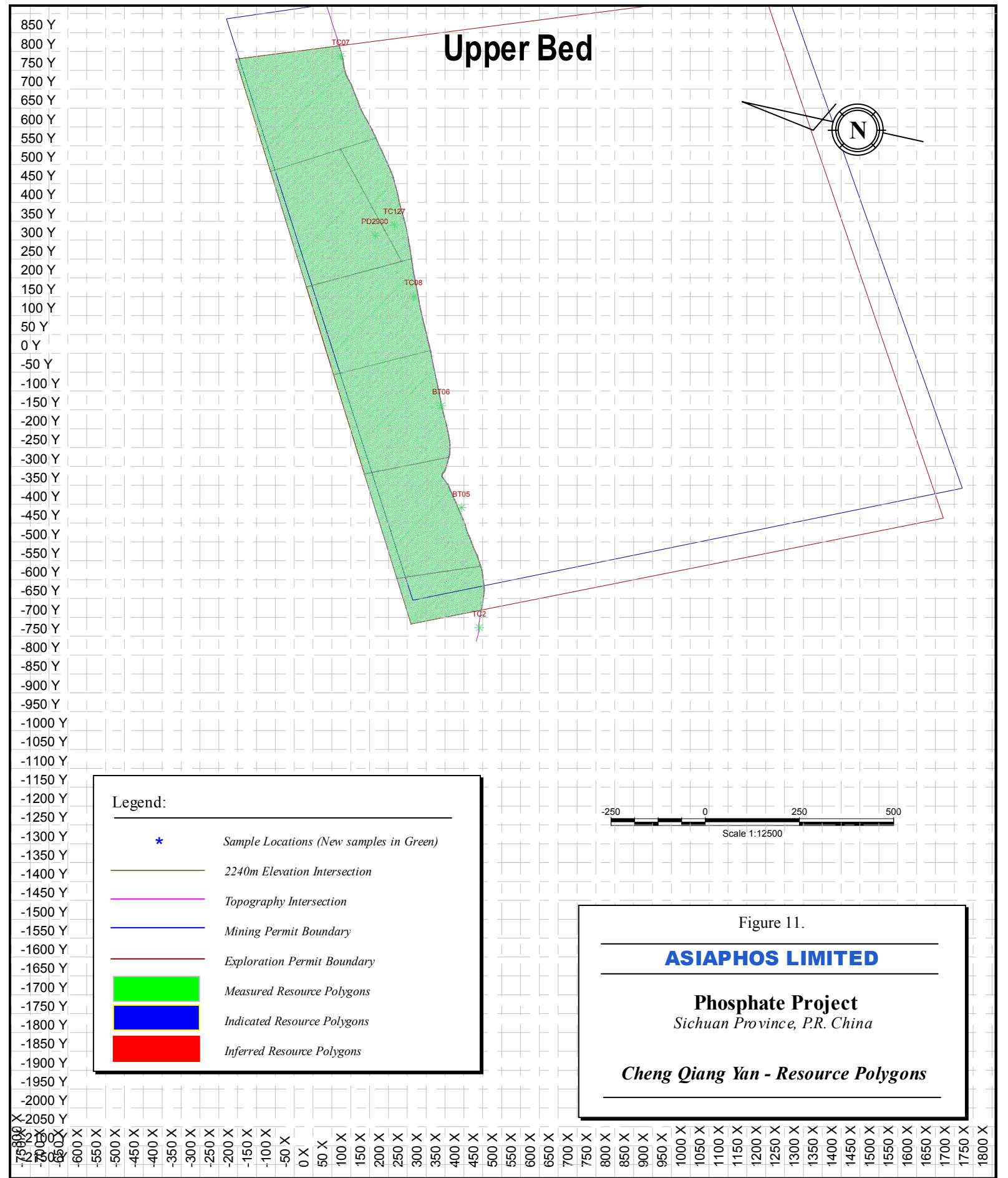
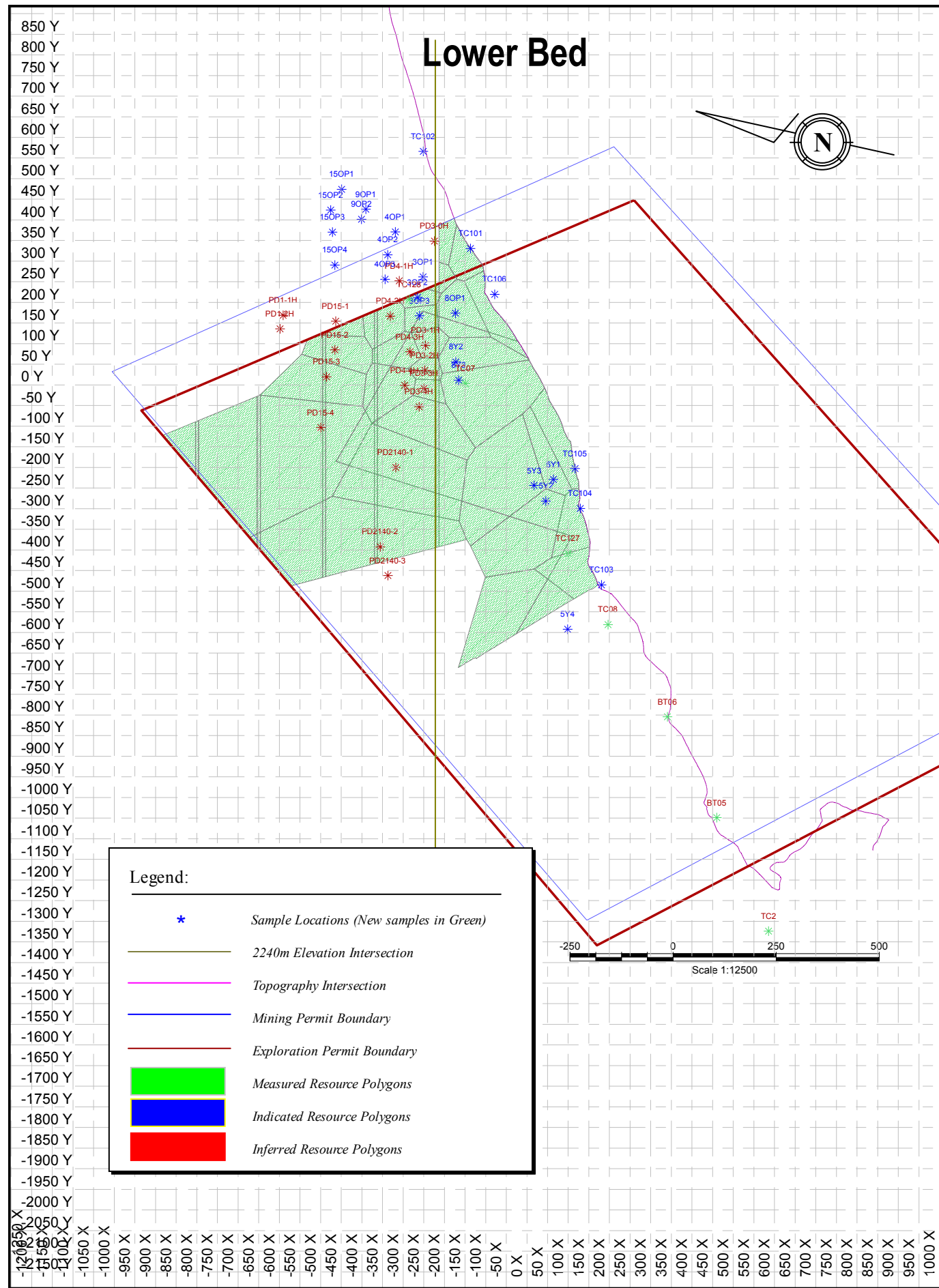


Figure 11.
ASIAPHOS LIMITED
Phosphate Project
Sichuan Province, P.R. China
Cheng Qiang Yan - Resource Polygons

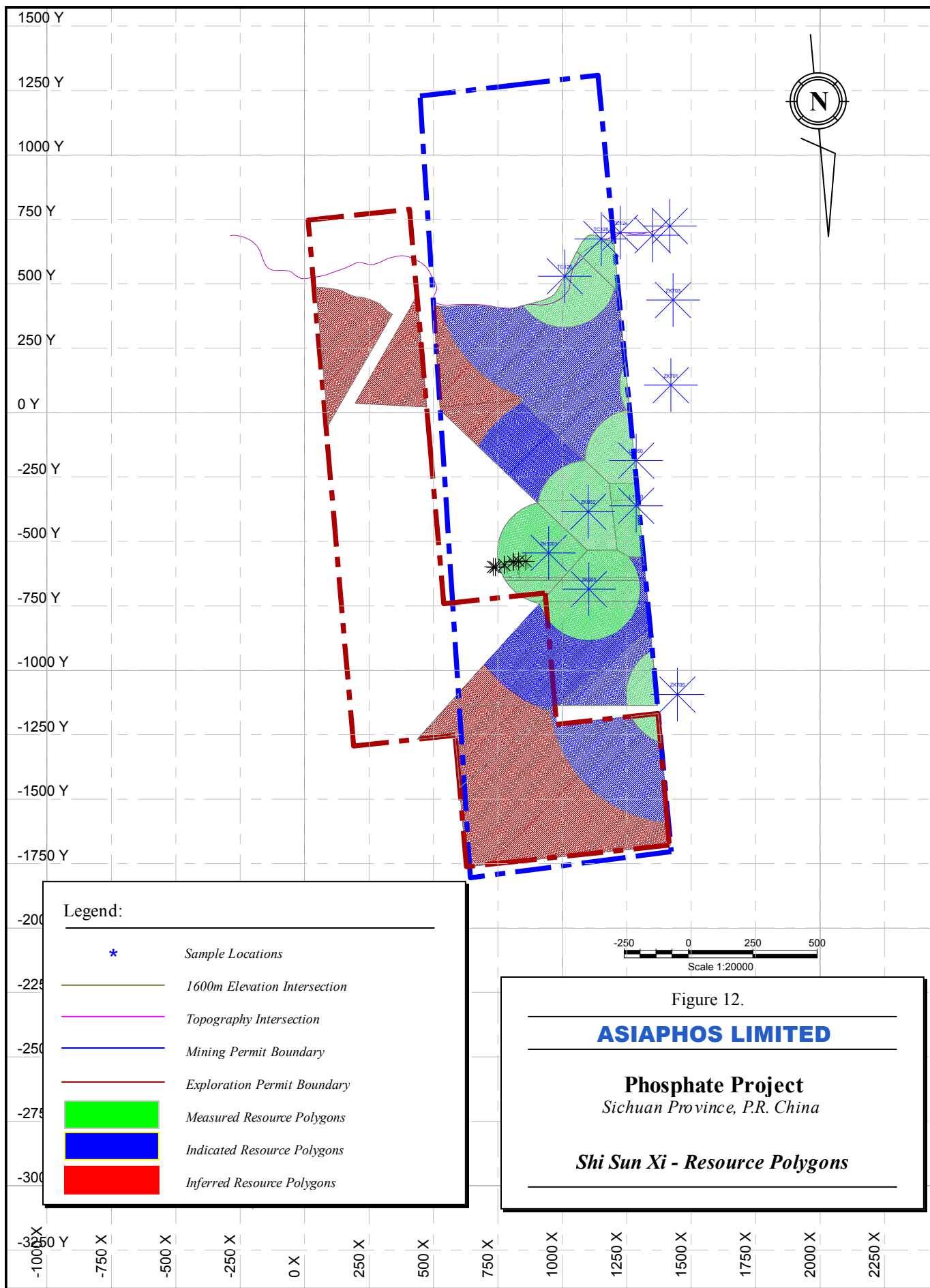


Figure 12.

ASIAPHOS LIMITED

Phosphate Project
Sichuan Province, P.R. China

Shi Sun Xi - Resource Polygons

15. MINERAL RESERVE ESTIMATES

The Mineral Reserve tonnage as defined in National Instrument 43-101 is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study including adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. The CIM Best Practice Guidelines for reporting industrial minerals resources and reserves provide that producing industrial minerals operations can classify and report resources and reserves without having completed a Preliminary Feasibility Study if the company has demonstrated profitable production in prior years.

AsiaPhos (Mianzhu Norwest) was a small vertically integrated miner and producer for more than 6 years prior to the 2008 earthquake. Since 2010 the company has rebuilt and modernized its processing facility and has been re-habilitating and upgrade the former mining operations. Limited mining was restarted in 2010 and has now reached 1,208,000 tonnes with a production level averaging more than 200,000 tpa for 2014, 2015 and 2016. Production in 2017 which was limited to less than 6 months was more than 180,000 tonnes.

This NI 43-101 report contains an updated economic analysis incorporating the operational results of both the mining and upstream processing since the company's stock exchange listing in 2013 and forecasts based on the Mineral Resources estimated by WGM. The company has demonstrated profitable operations in 2016 confirming that its integrated operation is economically viable. Based on the operational results for 2014 to 2017 WGM believes that the Mineral Resources outlined in the company's mine planning for extraction during the next three years can be classified as Mineral Reserves as defined by NI 43-101, provided that the mining permit for the Cheng Qian Yan mine is renewed and mining operations at both the Cheng Qian Yan mine and the mine are allowed to continue. These reserves as presented herein represent only approximately 6% the total estimated Measured and Indicated Mineral resources.

For purpose of defining the identified reserves as at 31 December, 2017, WGM has only converted those resources to reserves which have been accessed by current development work and those areas in the immediate vicinity slated for development work in the mine plans for the next three years as provided by AsiaPhos because of the company's reliance on exploration by development.

Proven Reserves are derived from the Measured Resources, Probable Reserves from Indicated Resources. For conversion to reserves, mining losses in stopes, can ranged up to 30% based on reported mine recovery ratios. This however includes pillars which may be recovered later. WGM has applied 30% dilution for determining the 2017 reserves based on the company's preliminary estimates. This includes approximately 2-4% loss due to moisture

content in the rock and internal pillars. The company uses contract miners that are paid on the basis of tonnes and grade and since the phosphate rock is visually very distinct dilution is minimal as miners tend to undermine stopes and dilution has therefore not been included. WGM has applied the same cutoff and product pricing criteria as per the Mineral Resource section.

SUMMARY OF THE MINERAL RESOURCES/RESERVES FOR MIANZHU NORWEST MINES

Category	Mineral Type	Gross Attributable to licence		Net Attributable to Issuer Assumed at 100%			Remarks
		Tonnes (millions)	Grade (P ₂ O ₅ %)	Tonnes (millions)	Grade (P ₂ O ₅ %)	Change from previous update ⁸ (%)	
Reserves							
Proven	Phosphorite	0.9	27.73	0.9	27.73	-18	-200k tonnes
Probable	Phosphorite	<u>0.5</u>	<u>27.11</u>	<u>0.5</u>	<u>27.11</u>	<u>0</u>	
Total		1.4	27.50	1.4	27.50	-13	
Resources							
Measured	Phosphorite	16.2	27.51	16.2	27.51	-2	+200k tonnes
Indicated	Phosphorite	<u>5.3</u>	<u>28.22</u>	<u>5.3</u>	<u>28.22</u>	-53	-6M tonnes
Total		21.6	27.69	21.6	27.69	-1	
Inferred*	Phosphorite	4.0	26.09	4.0	26.09	-77	-13.8M tonnes

* refers to the reduction of Inferred resources for the mine 2 exploration permit as a result of exploration results from 2016/2017.

Notes: Mineral Resources and Reserves effective December 31, 2017.

1. WGM Senior Associate Industrial Mineral Specialist, Donald Hains, is the Qualified Person for this Mineral Resource/Reserve estimate.
2. Mineral Resources are estimated at a cutoff value of 8% P₂O₅ (based on a price of US\$60/t P₂O₅), and a minimum phosphorite bed thickness of 0.25 m.
3. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.
5. The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May 10, 2014.
6. S.G. of 3.08 tonnes/m³ and 3.03 tonnes/m³ used for Cheng Qiang Yan and Shi Sun Xi respectively.
7. Indicated amounts may not precisely sum due to rounding.
8. Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.
9. Previous Mineral Resource estimate update was prepared 31, December 2016.
10. The decreased tonnages in the Measured and Indicated categories are attributed to the upgrading of portions of the resources to the Mineral Reserve category, and to a lesser extent, depletion due to ongoing mining. Note that Mineral Reserves are being reported for the first time for these mines, under NI 43-101 Standard.
11. Estimated Mineral Resources reported are in addition to Mineral Reserves.

As a result of the notice of non-renewal for the Mine 1 permit, WGM has also restated the estimates without the Mine 1 mineral reserves.

The resources and reserves are estimates made to the best ability of the company and WGM at the effective date, but forward-looking development involves many factors that may cause results to differ materially from expectations. A full account of these factors is contained in the subsequent sections of this report.

WGM and the Qualified Person, D. Hains, P. Geo., confirm that as of the date of this report, there are no legal, political, environmental or other risks known to them that other than the official notice from the Sichuan Provincial Authority 9 February, 2018, of the "**Mine 1 Notice of Non-Renewal**", that could materially affect the potential development of the Mineral Reserves outlined for Mine 2.

WGM has now made seven visits to the area since 2010 and has reviewed all aspects of the operation and can verify that at the time of reporting that economic extraction is in progress and that the planned production targets for the next three years are reasonable and justified. With the planned continuing increase in production over the next 3-4 years the company has started to update its underground exploration and mining data collection process and implemented an underground stope sampling and definition drilling program in 2017. As this process advances the company will be able to accelerate its conversion of Mineral Resource to Mineral Reserves.

As of the date of this report, AsiaPhos has been informed that the Cheng Qian Yan, Mine 1 permit will not be renewed. The Shi Sun Xi Mine 2 mining permit is valid until 2020. The resultant changes to Mine 1 are reflected below.

**RESTATED SUMMARY OF THE MINERAL RESOURCES/RESERVES FOR
MIANZHU NORWEST MINES (without Mine 1)**

Category	Mineral Type	Gross Attributable to licence		Net Attributable to Issuer Assumed at 100%			Remarks
		Tonnes (millions)	Grade (P ₂ O ₅ %)	Tonnes (millions)	Grade (P ₂ O ₅ %)	Change from previous update ⁸ (%)	
Reserves							
Proven	Phosphorite	0.2	27.28	0.2	27.28	-83	-945k tonnes
Probable	Phosphorite	<u>0.5</u>	<u>27.11</u>	<u>0.5</u>	<u>27.11</u>	0	
Total		0.7	27.16	0.7	27.16	-13	
Resources							
Measured	Phosphorite	6.5	29.31	6.5	29.31	-2	-9.5M tonnes
Indicated	Phosphorite	<u>5.3</u>	<u>28.22</u>	<u>5.3</u>	<u>28.22</u>	-53	-6M tonnes
Total		11.9	28.82	11.9	28.82	-1	
Inferred*	Phosphorite	4.0	26.09	4.0	26.09	-77	-13.8M tonnes

* refers to the reduction of Inferred resources for the mine 2 exploration permit as a result of exploration results from 2016/2017.

Notes: Mineral Resources and Reserves effective February 28, 2018 (assuming exploration permit will not be renewed.)

1. WGM Senior Associate Industrial Mineral Specialist, Donald Hains, is the Qualified Person for this Mineral Resource/Reserve estimate.
2. Mineral Resources are estimated at a cutoff value of 8% P₂O₅ (based on a price of US\$60/t P₂O₅), and a minimum phosphorite bed thickness of 0.25 m.
3. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.
5. The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May 10, 2014.
6. S.G. of 3.08 tonnes/m³ and 3.03 tonnes/m³ used for Cheng Qiang Yan and Shi Sun Xi respectively.
7. Indicated amounts may not precisely sum due to rounding.
8. Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.
9. Previous Mineral Resource estimate update was prepared 31, December 2017.
10. The decreased tonnages in the Measured and Indicated categories are attributed to the upgrading of portions of the resources to the Mineral Reserve category, and to a lesser extent, depletion due to ongoing mining. Note that Mineral Reserves are being reported for the first time for these mines, under NI 43-101 Standard.
11. Estimated Mineral Resources reported are in addition to Mineral Reserves.

16. MINING METHODS

From 2002 until the Wenchuan Earthquake in 2008, Mianzhu Norwest has produced and shipped approximately 379,000 tonnes of phosphate rock. Since that time until the end of the end of 2016, approximately 1,026,000 dmt were produced and shipped. Mine output for 2016 totalled approximately 318,000 tonnes (309,907 dmt) and for 2017, 186,440 tonnes (181,816 dmt).

Mining

The company's two Phosphate producing mines are both underground mines comprising relatively higher density, hard host rock. Primary access is by adit from the lowest level through ramps and manways, which connect most of the levels.

Access is from mountainside adits at 100 metre vertical intervals and plus 3% grade for water control are used as secondary access.

Development headings are driven with handheld jacklegs powered by compressed air. Ground supports are installed where ground condition is weak. Standard ground support includes rock bolts and mesh, steel arches and timber fillings, and shotcrete.

Portal areas are reinforced with concrete.

Crosscuts are driven from the footwall adit drift into the ore zone at regular 15 metre centers. Without diamond drilling, these crosscuts are initially used to find the ore zone and outline potential stoping blocks, then later utilized as drawpoints for ore removal from the stope. A typical stope is 50 metres along strike and 50 metres high. Once a stoping block has been outlined, conventional ladder raises are driven every 50 m along the adit drift to define the lateral extent and gain access to the top of the 50 m high stope.

The footwall raises are driven from the adit drift to a captive sub level 50 m above and then the raise is continued up another 50 m to the adit above. The Phosphate orebody is fairly consistent but can be cutoff or displaced by faults. If the ore is consistent between adit levels, a pair of raises will define two stopes, one from the adit to the sublevel and a second from the sublevel to the upper adit.

Once development of the drifts, crosscuts, sublevel and raises are completed as part of the preparatory work and through ventilation established, then mining of the stoping block may commence. During the stope development phase, the drawpoints are coned up to an undercut level. Once that first cut is taken 50 m along strike between the two stope raises, the regular stoping cycle can begin.

The mining method is conventional shrinkage stope where uppers are drilled using handheld drills in a horizontal slice from one raise to the raise at the other extent of the 50 m long stope. Due to the steeply dipping ore, gravity allows the broken ore in the stope to migrate down to the extraction drawpoint below. Swell muck is extracted from drawpoints and the remainder of the ore is left in the stope for a working platform for the stope miners who work off the broken ore in the stope.

Blast Hole Drilling

In order to optimise the recovery of high-quality phosphate rocks with high P₂O₅ content level, care is taken to minimize dilution by placement of drill holes and limiting the amount of explosives charged in the holes. During the drilling cycle, continuous water sprays are used to minimise the inhalation of dust by miners.

Retrieving

After the explosives are detonated remotely, the blasted phosphate ore is removed from the lodes. Strict safety precautions are observed in the use of explosives, such as ensuring that miners are at a safe distance prior to the detonation of explosives. And before the miners are allowed to re-enter the adit following a blast, the lodes are well-ventilated from any harmful gases or residual dust.

Transport

Depending on the actual conditions and slope angle of the relevant phosphorite bed, phosphate rocks may be recovered directly from the stope drawpoint.

Ore is now hauled from the drawpoints with tractors to ore passes, which were redesigned from original mine design to allow ore and waste rocks to be collected at a series of loading points at bottom level of the mine by an electric powered rail system with mine carts to the portal. This haulage system replaced the cable tramway used to haul ore and waste in the air across the valley.

Facilities

The mines are located within a few kilometres of an all season road maintained by the State.

The mines and processing operations benefit from nearby water supply from both rivers and wells and are close to power provided by the state grid. The processing plant also has a closed circuit water recycling system, which is compliant to Chinese national standard for water treatment for chemical factories. The recycled water is a source of supply to daily operations in the processing plant. A back-up diesel generator has also been installed to mitigate any disruptions to electricity supply.

The company maintains offices, maintenance facility and fully functional camp, at each of the mines. The small office facility at each mine includes gathering rooms for job

instruction, safety meetings and training courses. Other offices are available for supervisors and engineering drawings. Mine plans are submitted to the government annually but updated weekly by company surveyors on AutoCAD for daily and monthly mine planning.

A small contractor maintenance facility is manned by mechanics who maintain loaders and bulldozers used to build and maintain roads within several kilometres of the mines.

The camps provide a fully catered kitchen facility and sleeping quarters for the miners. Since the area is rich with Mineral Resources, there are a number of other mining operations in the area. This provides the company with a large pool of highly experienced miners which is available locally within the region.

The company also provides a small assay lab at the main plant for grade control. Muck samples are taken in drawpoints in addition to sampling from the trucks during the stockpile operation.

Mining related infrastructure on surface has been upgraded to effectively utilize the rail system. Ore chutes and waste dumps are located outside the portal of the lowest level.

Materials are directly unloaded from the carts into designated areas. Ore is loaded with loaders from chutes into trucks, which are provided and operated by third party trucking contractors. A scale near the office facility 1-2 km from the mine is used to weight the trucks before departure to the processing plant.

17. RECOVERY METHODS

Mine ore is transported by contract truckers from the two mines to the company's processing plant located in Gongxing industrial zone. Each truck carries a ticket identifying the origin by mine well and a weigh ticket from the mandatory government weigh scale located between the mines and the plant. The trucks are instructed to dump in stockpiles, one stockpile per well of origin and samples are sent to the nearby company assay lab to determine the grade and moisture content. Once the grades have been determined, mine ore from the various stockpiles is sent either to the processing facility or sold as raw ore based on grade/quality of the material.

The stock piled ore is fed by loader and conveyor belts to two stages of rock crushing which have been installed in the courtyard. Based on selection criteria the ore is separated into material for direct sale or for further processing and then crushed to uniform size.

Lower grade material is generally sold untreated as crushed rock for local consumption or to the fertilizer industry and is not processed any further.

The highest quality rock that is mined is utilized to meet the capacity of the Mianzhu Norwest P4 Plant (see section 18 Process plant facilities).

The phosphate ore, coke and silica are each dried using the thermal energy from the recycled waste flue gas and then stored in appropriate silo's from which they are then conveyed in their appropriate rations into the feed bin for the P4 furnaces.

The mixed ore, coke and silica are then fed into the furnace on a continuous basis as required. The molten material undergoes a reductive reaction releasing the gasses containing phosphor and CO. The gasses then together with dust are directed into four cooling towers where they are sprayed with water with the sublimates settling in the receiving bins at the base of the towers.

The material then flows into purification bins and are rinsed for 48 hrs with hot water after which the material settles for 24 hrs. The liquefied phosphor is then pumped into product storage tanks for sampling before sale.

The phosphorous sludge from the purification bins is settled in an underground storage pool and then pumped into evaporating pots. The residual sediment is then sent out to a phosphoric acid manufacturing facility.

All the water used in the cooling towers and other processes is collected and stored in a waste water pool, from where it is treated and then recycled.

The waste gasses from the cooling tower, which contain about 80-90% CO are captured and used as energy for the drying of the raw materials and steam boilers after being cleaned and alkali rinsed. Unused gasses are burned and vented.

The slag which is drained from the furnaces once every three hours flows into a water filled slag pool where it is cooled. The slag is then sold for other industrial processes including cement manufacture. The Phosphor iron deposits which line the slag pool are recycled after cooling and extraction.

The molten phosphor is stored in underground tanks sealed by water and are pumped into barrels or tankers for sale as required.

Mine production in excess of the required capacity of the Mianzhu Norwest Plant is either stockpiled for future use or will be sold to other phosphate rock processors in the region. If necessary any shortfall in production from Norwest mining operations can be filled with the purchase of other production in the area.

The new processing location also includes an adjacent area for the production of the food processing chemicals, SHMP and STPP. Relocation of the STPP plant and the related storage and handling facilities immediately west of the new furnace site has been completed and is operational. At the time of the 2017 site visit the STTP plant was not operating. It was explained that production of STTP had been suspended due to low prices.

18. PROJECT INFRASTRUCTURE

Mine Infrastructure

Mianzhu Norwest has substantially completed agreements with neighbouring mine operations to integrate three surplus tunnels into their handling of mine rock production. These tunnels facilitate traffic movement, material handling and truck loading further down the valley at each operation to improve productivity, safety, and relieve congestion with truck loading.

The production forecast includes continued incorporation of these tunnels into the mine operations in 2016 to develop an underground passage system at both Mines that connects all levels to allow equipment and personnel to enter and exit the Mines through a well-established and protected main portal. These adits are established at lower elevations in areas where there is much reduced risk from further rock slides. The adits are constructed with a loading pocket with adequate capacity to support continuous truck loading in the adit and under the loading pocket.

Cheng Qiang Yan or Mine #1 is the company's flagship mining operation with development and/or stoping in seven adits or wells as of 2017. The seven wells being developed and/or mined at Mine 1 are Wells #1, #3 #4, #8 #15, 2140 and 2380.

Shi Sun Xi or Mine #2 is the newer of the two mines and is mainly under development. As of end of 2017, there were six adits or wells being developed at Mine #2, namely wells at Elevation Level 1600, 1655, 1709, 1815, 2050 and 2150.

While adits at Mine #1 are named by well number, the adits at Mine #2 are named by elevation in metres above sea level.

WGM has reviewed the mine development plans and capital cost estimates provided by Mianzhu Norwest, for both Mines. The plan consists of drift advancement on most of the existing mine levels to create production faces and to connect levels with rock passes and ventilation raises. The planned underground development will help Mianzhu Norwest to further explore and initiate definition of Reserves. This will lead to more accurate mine planning and control of production capacity and grades.

Process Plant and Facilities

Construction of its P4 Plant, which includes two (2) furnaces each of 10,000 tonnes capacity, at the New Gongxing industrial zone in FY2013 under Phase 1. After some initial technical start up issues with the P4 furnaces, AsiaPhos has now improved the situation, leading to reduce costs. Sales of P4 have increased from 3,500 tonnes in 2014 to approximately 10,000 tonnes in 2015 and 9,838 tonnes in 2016. Data for 2017 show production of 15,485 tonnes P4.

AsiaPhos will continue to coordinate phosphate rock sales and plant production to maximize income.

The company had expended approximately ¥170 million (approximately S\$34 million) to the end of 2016 on the construction of the New Gongxing Facilities.

The company has re-located all the plant facilities from Hanwang to Gongxing in 2013 and upgraded of the STPP Plant and other operating facilities (such as laboratories) and infrastructure for the factories (such as access roads).

Construction of new office building was completed in October 2014 and is now fully occupied.

Access Road

Mianzhu Norwest made a production forecast for their operations starting in 2012 of 40,000 tonnes and gradually building to 420,000 tonnes in 2016. Production in 2017 was limited to only six months due to road access restrictions and subsequent remedial work at Mine 2, which required approval prior to restarting. (see news release of November 24, 2017) http://asiaphos.com/pdf/20171124_AsiaPhos-Mining-Operations-Update_SGXNet-Released.pdf

Production in 2017 was limited to about 186,440 tonnes due to the access road washout. When the reconstruction of the northern section of the mine haulage road is completed the company expects to be able to increase production.

Major reconstruction work on the haulage road from the processing plant to Qing Ping Town paved and widened the road to two lanes throughout most of the distance, with single lane travel restricted only at certain narrower corners. A major water diversion and flood control structure at the side of the highway was also constructed in 2013. Many slope stability installations, such as bolting of screen mesh, and planting of vegetation, had also been completed to reduce the risk of further rock slides. A new highway, designed at a higher elevation to avoid flooding damage, is now under construction. The new design consists of underground tunnels and bridges. As of November 2016, a major milestone (completion of the Hanwang to Qing Ping town section of the Mian-Mao highway) was achieved. Further details are available via the '[5.12 Reconstruction Joint Conference / Sichuan Rebuild](https://www.512rjc.hk/tc/proj/hanwang.htm)' [website](https://www.512rjc.hk/tc/proj/hanwang.htm): (post-earthquake reconstruction collaboration under the leadership of the PRC Central Government, Sichuan Provincial Government and the Hong Kong SAR Government: <https://www.512rjc.hk/tc/proj/hanwang.htm>)

The conditions on the section north of Qing Ping Town to both mines or Section 2 of Mian-Mao Highway are also being improved with plans to construct a series of tunnels and bridges. This northern section of the road (Figure 13) currently requires major work to establish a safe

and reliable haulage route for the transport of Mianzhu Norwest mine production as well as that of two other mine operations in the area.

Mine haulage trucks are now allowed access to the new road with reduced loading capacity to meet requirement set forth by local government, however recent heavy rains in 2017 damaged the access road which has not yet been repaired, preventing access to all of the mines in the area.

Most parts of the road north of Qing Ping Town and the last 3 km to access the Mines is currently being reconstructed by government contractors. The three companies operating the mines in the area will provide maintenance after access is restored.

Road accessibility will be a critical factor until the construction is completed.

For the Mian-Mao Highway, the ‘Hanwang to Qingping’ section was completed by October 2016. Further details on the project and completion milestones are available via the ‘512rjc Sichuan Rebuild’ joint Sichuan-HK reconstruction committee: <http://bit.ly/2FwsQm6>

The section north of the mines or Section 3 of the Mian-Mao Highway was also observed to be under construction in 2016. This section requires heavy ground control installation to ensure the stability of the slopes and tunnel construction required steel structures to reinforce the slope and walls at their entrance. Shotcrete operations were observed on a section of the wall, that had been bolted and screened with mesh in 2016. There is no update on this section in 2017 as the main focus was on restoring access from extended raining season.

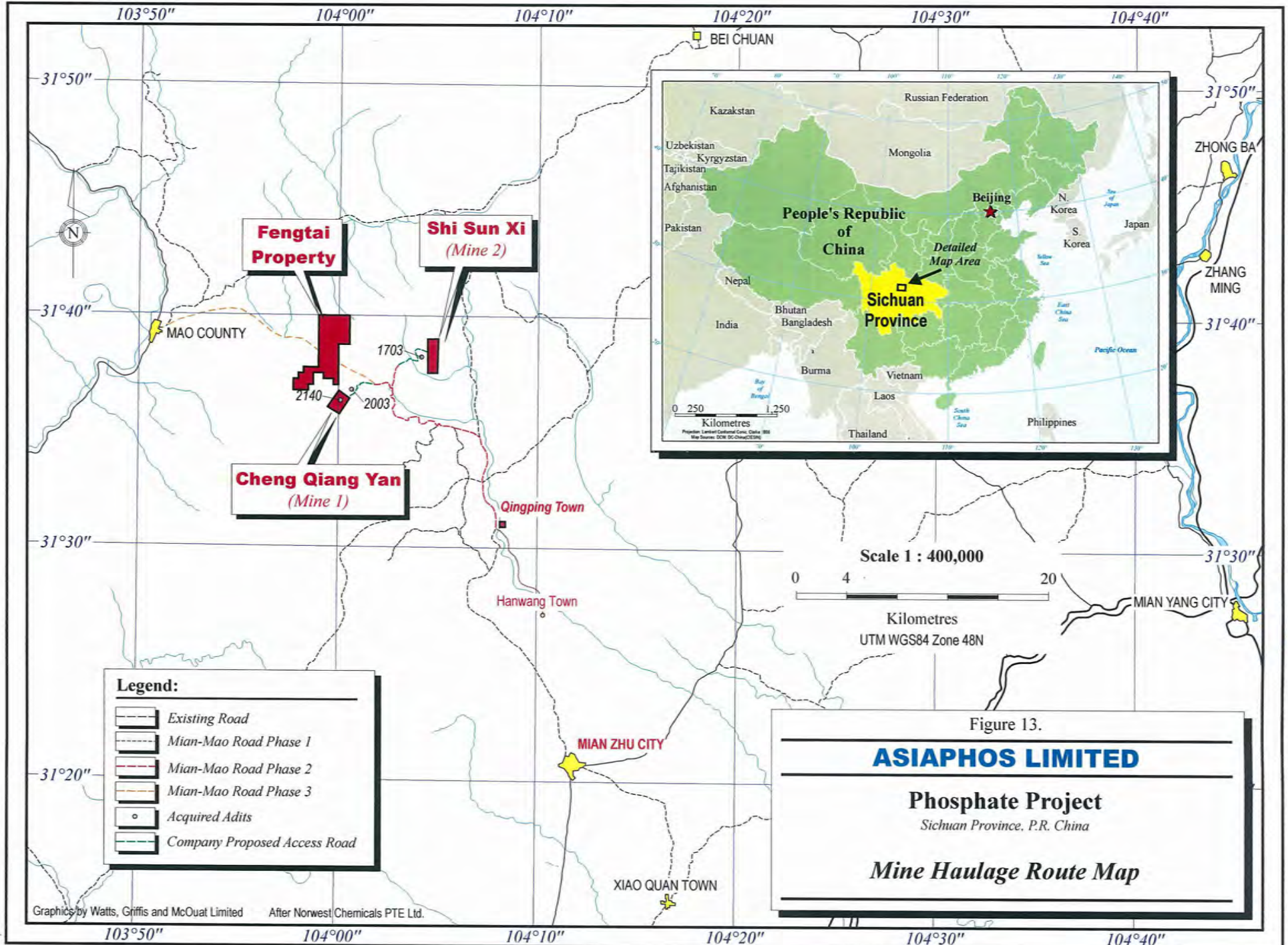




Photo 1. Mine Haulage Road

19. MARKET STUDIES AND CONTRACTS

The 2013 CRU report forecasts a modest growth for global phosphate production with a compound annual average growth rate of 1.8% per year until 2022. Production of phosphate chemicals and fertilizers increased rapidly in China from 2007 through 2015, and China now accounts for an estimated 55% of global phosphate production. China's share of world production is anticipated to decrease in the 2018 – 2022 time period due to significant expansions coming on-line in the MENA region, especially Saudi Arabia and Morocco, and consolidation in the Chinese phosphate industry due to increased cost pressures forcing the shutdown of uneconomic plants and increasingly stringent environmental regulations. CRU believes that future Chinese production will closely match domestic demand.

Reported production of phosphate rock in China in 2016 was 138 million tonnes (USGS, 2017) a 15% year over year increase. The increase in production was due to local demand for phosphate rock in downstream processing operations, this despite a downturn in the global markets and resultant weaker than expected export market demand. China remains the largest phosphorous ore producer in the world representing approximately 53% of world phosphate rock production. Phosphate fertilizer production and consumption within China are expected to remain balanced in the future, with market growth coming from increased exports to developing Asian Markets.

Capacity growth in the downstream phosphate sector has been significant and many plants operate at relatively low capacity utilization rates. The government and industry have recognized the problem and programs have been put in place to strengthen the competitiveness of the industry. Recently enacted measures include a major program of environmental inspections of downstream phosphate processors and consolidation of the industry and removal of export taxes. The objectives of the program are to reduce the number of small, uneconomic and polluting producers, improve the export competitiveness of the industry and to provide price support.

Phosphate fertilizer production and consumption within China are expected to remain balanced in the future, with market growth coming from increased exports to developing Asian Markets. Phosphate rock prices are expected to remain soft for the near term, however increasing costs and reduced supply locally could see some price improvements. Producers with the access to both raw materials and markets as well as low cost operations are best placed to profit from the business.

Prices for all phosphate products improved in 2017 from the low prices of 2016 (Figure 14).

Mianzhu Norwest produces a high grade phosphate rock and is able to sell its product at substantially higher prices than the global average price for phosphate rock in China.

AsiaPhos is actively selling and marketing its current production and has established buyers for its products. Most recently, AsiaPhos announced two framework phosphate rock supply agreements (AsiaPhos News Release dated March 14, 2017). These agreements incorporate a Letter of Intent between AsiaPhos and Mianyang Aostar Phosphorus Chemical Industry Co. Ltd. For the supply of 150,000 tonnes of phosphate rock in FY 2017 (quarters ended March 31, 2017–December 31, 2017), and a framework agreement between AsiaPhos and Sichuan Lomon Phosphorus Chemical Co. Ltd., for the sale by Mianzhu Norwest of 120,000 tonnes of Phosphate rock (>30% P₂O₅ content) to Sichuan Lomon at an indicative price of RMB355/tonne, and the purchase of 120,000 tonnes of phosphate rock (>25% P₂O₅ content) by Mianzhu Norwest from Sichuan Lomon at an indicative price of RMB 270/tonne. <http://www.asiaphos.com/pdf/20170314SGXNETAsiaPhosQMXandLomonAnnouncement.pdf>



(Source: <http://www.cnchemicals.com/Detail/Readonline.aspx?id=6863&type=n&cid=20879669307>)

Figure 14. Chinese Phosphate Rock Prices, January to December, 2017

The company is also actively maintaining its own marketing activities and as such has not found a need to update the former CRU International Limited (“CRU”) market review dated 21 June 2013 prepared for AsiaPhos which indicates that their phosphate rock are of relatively higher quality than other phosphate rock mined in the PRC

Demand for phosphate rock is anticipated to remain strong through at least the first half of 2018 as prices for downstream phosphate products have also recovered from the low levels experienced in late 2016 and early 2017.

An Industrial Minerals staff release 27 April, 2015 commented on the impending scarcity of high grade phosphate in China which has resulted in the implementation of greater measures to manage the market such as export quotas, tax measures and innovation to support its phosphate industry. Data from CCM (2015) indicate that the average PO content of phosphorite rock in China is now just over 17% and only an estimated 1.7 Bn tonnes of high grade reserves ($\pm 30\%$ P_2O_5), remains in the country. Operating costs in China show costs ranging from about US\$31/t for 28% ore vs about US\$73/t for 22% ore. AsiaPhos falls near the lower cost end of the scale.

The combined measured and indicated phosphate rock resources for Mine 1 and Mine 2 have an average P_2O_5 content of 29.62%. In addition CRU noted in their report that phosphate rock with a low Cadmium (Cd) content of less than 5 ppm Cd would generate a premium. Independent samples by WGM show the cadmium content of 2 composite samples to be 2.12 and 2.99 ppm respectively and more recent 2014 analyses of 10 samples by the geological bureau returned values in the range of 1.19-4.4 ppm.

Between 1 January and 31 December 2016, Mianzhu Norwest produced an actual mine output of approximately 318,000 tonnes (309,907 dmt) of phosphate rocks with an average P_2O_5 content of 30.25%. Reported production for 2017 was 188,440 tonnes (wet Basis) at an average grade of 30.15% P_2O_5 and a moisture content of 2.48%.

In addition, the phosphate rocks obtained from the Mining Operations have relatively low arsenic content levels. External samples collected by WGM in 2013 ranged from 16-30 ppm, more recent analyses of 10 samples by the geological bureau returned values in the range of 7.7-22.2 ppm, all in the relatively low range.

AsiaPhos believes that the phosphate rocks with relatively high P_2O_5 content and low contaminants offer production and cost efficiencies in Chemical Production Operations.

Management policies are being implemented by China to safeguard its high grade phosphate resources for the future. Industrial grade phosphoric acid tariffs for 2016 were reduced from 300 ¥ /Tonne to zero. The Ministry of Land and Resources in China has designated phosphate rock as one of the 20 strategic mineral resources, with possible implications for export quotas. Export tariff due to low demand were reduced from 35% to 20% in 2016. Source: extract from draft feasibility report (section 3.4 and 3.5.3.2) by "四川省有色科技集团有限公司" ([Sichuan Non-Ferrous Technology](#)). CCM/Industrial Minerals expects China will try to balance its internal supply and demand. Any increased domestic demand will therefore support higher prices for both rock and P4 products.

While current measures such as tax cuts to low grade producers may benefit some, increased taxes for higher grade ores and potential limits on the exploitation of high grade ores may provide some challenges for AsiaPhos; these however are expected to be offset by expected

government incentives to improve mining and processing efficiencies. AsiaPhos has made significant headway in this regard and has benefited from these measures.

Their modern state of the art facilities are expected to further benefit the company by allowing them to maintain and possibly increase market share as lower grade and non-integrated producers will face higher operating costs.

Vertically integrated operations will continue to be favoured and AsiaPhos benefits from a number of factors such as operational experience, access to power, their new and more efficient plant and an established marketing network. This conclusion respecting the development of the Chinese phosphate industry was confirmed by CRU in a presentation at the 2014 CRU phosphate conference in March 2014.

While still considered small scale and faced with a fragmented local market, the companies objectives of growing operations to 400,000 tonnes (wet basis) per annum for the near term and to 1 million tonnes annual production over the longer term which would advance them to a larger scale producer category. The domestic market is considered to be the primary market at least for the short term.

AsiaPhos believes that their vertically-integrated strategy will provide stability with the supply and price of raw material as well as quality assurance and production flexibility, as noted in the Offer Document dated 25 September 2013 and detailed below:

- *Raw materials price and supply stability* – AsiaPhos will be able to control processing costs as the main raw material, phosphate rock, will be supplied by their own mines. AsiaPhos are also able to cushion to some extent margins from the impact of fluctuations in prices of intermediate products, such as phosphoric acid and P4, which may be used as raw materials. In addition, the AsiaPhos mines provide a more stable source of raw materials to Chemical Production Operations;
- *Raw materials quality assurance* – AsiaPhos intends to use phosphate rocks from their mines for Chemical Production Operations, to control and assured quality of raw materials used; and
- *Sales and production flexibility* – AsiaPhos will have the flexibility of allocating phosphate rocks to either direct sales or to Chemical Production Operations. Depending on business strategies, production schedules, existing orders, market prices of and demand for phosphate rocks and phosphate-based chemical products, AsiaPhos will have the flexibility to produce and sell phosphate rocks and phosphate-based chemical products in accordance with current market conditions to optimize profit margins and achieve business strategy.

In the opinion of WGM, the statements above remain valid and applicable to AsiaPhos' operations and marketing strategy.

20. ENVIRONMENTAL STUDIES, PERMIT, AND SOCIAL OR COMMUNITY IMPACT

In the course of WGM's initial review of the various aspects of the operations and facilities of Mianzhu Norwest, WGM noted various conditions and practices that would not meet the standards of international best practice. Mianzhu Norwest acknowledges this and has stated the desire to move their operations towards international best practices. The current operating plans provide for capital and operating budgets to maintain the operations in compliance with PRC regulations. The Plant relocation completed in several stages between 2014 and 2016 is operating in compliance with the environmental law of the PRC and practices water recycling and off gas collection as well as slag disposal at a nearby cement operation.

The company also provides monetary reimbursement for a timberland compensation and forest recovery fund bi-yearly and has set aside provisions for rehabilitation and reforestation upon mine closure as well as investment in a number of areas to improve the mine workplace safety and productivity. The underground operations have recently installed a communication and personnel locating system as well as provision of mine refuge stations, fire control and prevention, and underground air quality monitoring.

The company has also complied with and obtained the required Mine safety permits and has installed waste water treatment facilities at the mine sites and has also budgeted for the improvement and maintenance of access roads (in conjunction with its neighbours).

As an initiative in community social responsibility, Mianzhu Norwest has also donated funds to help finance education for local students from low income families. The company plans to continue donating part of the annual net profit as well as funding scholarships for university students.

Mianzhu Norwest has indicated that the cost of maintaining the operations in compliance with PRC regulations are not considered a significant operational cost item. These include but are not limited to fees for the land use rights/temporary occupation permit for the processing facilities, exploration and mining licence renewal and applications fees and environmental and closure (abandonment) costs.

In conjunction with its 2016 Feasibility Study required by PRC to convert its exploration permit to a mining permit and increase production to Mianzhu Norwest was also required to prepare an Environmental Impact Assessment, Health and Safety Study and Social Risk Analysis among other things. The company in order to meet the required guidelines for the increased production levels has started the process of enhancing its mine water discharge treatment to reduce suspended solids, and to upgrade its mine ventilation system to enhance

its air quality and solid waste management. Waste rock will be used as backfill and for the construction of retaining walls at the lower mining level adits to protect the loading platform areas from runoff. Additional work to prevent erosion and rock falls around the mining openings will include stabilizing the slopes with appropriate drainage and protective berms as required and re-vegetation of affected areas. This work continued in 2017 and is required to be completed prior the restart of mining activity.

The recently enlarged Panda Reserve in addition to the local Nature Reserve now overlaps with many of the mines in the area. The Company has received official notice that its Mine 1 permit will not be renewed upon expiry at the end of February 2018, but it is still uncertain as to how this will impact other existing mining operations such as Mine 2 and exploration permit renewals. (See asiaphos news release Nov 24, 2017)

21. CAPITAL AND OPERATING COSTS

WGM has reviewed the mine development plans and capital cost estimates provided by Mianzhu Norwest, for both Mines to the end of December 2017. The drift advancement on most of the existing mine levels to create production faces and to connect levels with rock passes and ventilation raises has advanced well. The underground development work will help Mianzhu Norwest to further explore and initiate definition of Reserves. This will lead to more accurate mine planning and control of production capacity and grades.

All development and mining at the company's two mining operations is completed using experienced contract miners. Since rates are contracted, annual development and stoping costs are predictable. All development and mining costs are at a flat rate as defined by contracts and all consumables except explosives are the responsibility of the contractor. Contract drill and blast crews are responsible for all development and mining.

Included in the analysis is the capital cost estimates for establishing the production increases. The capital estimated by WGM also includes completion of the necessary drilling to define Measured and Indicated Resources that can, with the appropriate application of the Modifying Factors, be converted into Reserves as detailed in Table 26 in Section 26 as well as the ongoing exploration needed to update the Reserves.

The current surface areas being used to sustain mine production and loading of haulage trucks will still require major revisions to reach and sustain the target production goal of 1.0 Mtpa. WGM has commenced its mine expansion study to design the best way to develop and operate the mines to produce 1.0 Mtpa.

An initial capital cost allowance of US\$18.8 million was estimated in 2013 to complete mine development and purchase the necessary mobile equipment to reach the 1.0 Mtpa production target. This capital cost allowance has not yet been revised and should be regarded as very preliminary with a possible variance of plus or minus 30% as the full scope of work cannot be properly defined until the thorough engineering study is completed. The sensitivity of the mine expansion capital cost is shown in Figure 13 to be the least significant to the project economics.

WGM believes that expenditures to remove the high risk of rock slides near the main adit at Mine 2 should be maintained to avoid potential injuries to the workforce as well as potential damage to equipment. Production has now commenced from the main portal that was under construction during the previous site visit resulting in a much reduced risk from potential rock slides.

Although still subject to study, it has been assumed that a more international style design will be adopted to provide a higher level of safety along with some application of trackless equipment both in the stope operation as well in rock handling to the surface haulage trucks. It would be expected that the low labour costs of the PRC would be integrated into the higher productivities of western style design and mining equipment. Further study is required to refine future expansion plans at the two existing mines. Expansion is based on receiving approvals to convert certain exploration leases to mining leases, a requirement for production mining.

The average long term operating costs as presented in Table 20 are used only for long term budgeting and are based on company supplied historical costs of the Mianzhu Norwest's operations prior to the Wenchuan Earthquake.

TABLE 20.
SUMMARY OF 2017 OPERATING AND CAPITAL COSTS
MIANZHU NORWEST'S OPERATIONS

Description		
ECONOMIC PARAMETERS		
Exchange Rate	¥6.2955:US\$1.00 (February 2018)	
Inflation Rate	3.0%	
OPERATING COSTS		
Operating Costs per Tonne Product		
Phosphorous Rock	¥189/mt	\$30
P4	¥10,892/mt	\$1,730
STPP	¥ 6,016/mt	\$956
CAPITAL INVESTMENT (2017)	12.8 million	

Operating Costs for Y2017

The total unit operating cost for phosphate rock in Y2013, based on approximately 128,000 dry tonnes was ¥243 per tonne mined including amortisation and depreciation, compared to ¥240 per tonne in 2012. For 2014 costs were ¥242 and for 2015 cost were ¥222 per tonne. The lower costs in 2015 were due in part to termination of the Dashan profit sharing agreement in July 2015 and the improved operating efficiency at the mines due to the recent upgrades. Costs for 2016 with approximately 310,000 dmt were ¥198/mt reflecting in part reduced taxes and operating efficiencies. Costs for 2107 were ¥189/mt.

**TABLE 21.
OPERATING COSTS 2017**

(¥ per tonne)	Actual		Budget	Forecast 2018
	FY2017	% to total	FY2017	
Labour	92.81	49.0	86.07	95.60
Transport	39.16	20.7	49.29	40.33
Maintenance	4.74	2.5	3.85	4.97
Production cost	18.36	9.7	29.37	18.91
Government taxes and surcharge	0.71	0.4	15.61	0.74
Production incentive	1.78	0.9	3.56	3.39
Amortization /Depreciation	27.74	14.6	13.65	15.35
Salary/wages of mining supervisors	<u>4.11</u>	<u>2.2</u>	<u>1.83</u>	<u>2.16</u>
Total Unit Cost	189.40	100.0	202.00	181.45

The 2018 operating forecasts were based on an assumed mining rate including both Mines 1 and 2. With the non-renewal of the Mine 1 permit operational costs may be materially different depending on the achieved through put at Mine 2 in 2018.

22. ECONOMIC ANALYSIS

22.1 FUTURE PRODUCTION PLANNING/MINE PLAN AND FINANCIAL EVALUATION

As at 31 December, 2017, Mianzhu Norwest has produced approximately **1,182,270** dmt of Phosphate ore since the Wenchuan Earthquake. With the start-up of the 20,000 tpa Plant in mid-2013, mine production was gradually expanded to annual levels of 400,000 tonnes, or more. Production for 2017 was **181,666** dmt as operations were limited to less than six months. Mine production in excess of the required capacity of the Mianzhu Norwest Plant will be sold to other phosphate rock processors in the region conversely shortfalls can be made up in a similar manner. The highest quality rock that is mined will be utilized to meet the capacity of the Mianzhu Norwest Plant. With the risk associated with the road ongoing road reconstruction and frequent heavy rains maintaining an inventory of mined rock at the plant site will be important. The company generally maintains sufficient rock in their stockpile to allow for supply interruptions based on their experience to date. If necessary any potential shortfall in production from Norwest mining operations could be filled with the purchase of other production in the area.

The expansion of production has seen extensive development and increased capacity at the two Mianzhu Norwest mining sites. Over this expansion period the number of producing levels, increased to 12 levels in 2017 in order to achieve mine production of 400,000 tpa.. The expanded mine production is based on achieving approximately 30,000 tpa from each mine production level. The production build-up is as shown in Table 22.

In addition to the typical past history of using aerial tramways to handle the rock from the mine portals to truck loading bins, Mianzhu Norwest made agreements with neighbouring mine operations to integrate three surplus tunnels into their handling of mine rock production. These tunnels facilitate traffic movement, material handling and truck loading further down the valley at each operation to improve productivity, safety, and relieve congestion with truck loading.

The proposed production build-up as shown in Table 22 assumed access to production from both mines. The numbers for the proposed production from Mine 1 are shown in red to highlight the lost production potential.

Mianzhu Norwest is also planning exploration/development activities to access the projected mineralized zone on the adjacent FengTai property in 2018. Subject to the completion of planned exploration, the confirmation of qualifying mineral resources and the requisite test work and regulatory permitting the company hopes to supplement the above noted production (see Table 22) by late 2018 or 2019 with pre-production development material.

TABLE 22.
MIANZHU NORWEST MINE PRODUCTION, MIANZHU NORWEST PHOSPHORITE OUTPUT
(dry metric tonnes per year (dmt))

	2012	2013	2014	2015	2016	2017	Total	2018	2019
<u>Mine 1</u>									
Adit #1	-	70	23,673	25,494	63,296	33,451	145,984	69,000	70,000
Adit #15	30,389	46,988	67,517	42,656	41,897	18,316	247,763	38,000	39,000
Adit#4	18,230	42,092	58,187	42,813	31,639	13,011	205,972	27,000	29,000
Adit#3	5,829	22,185	30,526	37,521	35,543	14,858	146,462	30,000	32,000
Adit#8	-	6,458	15,104	19,411	20,795	5,876	67,644	12,000	13,000
Level 2140	-	-	-	9,162	13,104	10,244	32,510	21,000	25,000
2380	-	-	-	-	9,074	8,046	17,120	17,000	20,000
Total	54,448	117,793	195,006	177,057	215,348	103,801	863,453	214,000	228,000
<u>Mine 2</u>									
Level 1815	4,800	4,825	12,290	14,454	11,267	299	47,935	-	-
Level 1950	2,618	2,542	298	197	-	-	5,655	-	25,000
Level 2050	-	3,126	12,566	33,893	33,990	15,928	99,503	33,000	34,000
Level 2150	-	-	500	11,476	3,562	1,711	17,249	4,000	4000
Level 1709	-	-	5,780	37,030	45,740	27,919	116,469	57,000	60,000
Level 1655Wells	-	-	-	-	-	20,349	20,349	42,000	50,000
Level 1600	-	-	-	-	-	11,657	11,657	24,000	29,000
Level 1400-900	-	-	-	-	-	-	-	-	50,000
Total	7,418	10,493	31,435	97,049	94,559	77,865	318,817	160,000	252,000
GRAND TOTAL	61,866	128,286	226,441	274,106	309,907	181,666	1,182,270	374,000	480,000

WGM has elected to include its economic analysis, prepared as of December 31, 2017, despite the recent events. WGM understands that the non renewal of the Mine 1 permit and likely withdrawal of all the other permits will make the analysis redundant, however, its inclusion will provide a reference basis of comparison for both Asiaphos and its shareholders.

WGM has reviewed Mianzhu Norwest's current proposed production plan and has completed an independent evaluation of the economics of the project until 2033. This review includes the original plans of gradual expansion of the mining capacity to 1.4 Mtpa (million tpa) over a seven year period following the scheduled completion of the haulage road reconstruction. WGM understands that access to the new highway is subject to further review and no time lines are given. These plans have been prepared on the assumption that all permit renewals will be granted and proposed production increases will be approved.

WGM has not considered what permitting may be necessary to expand the mine production nor allowed for any delays in the production schedule that may result from failure to receive the necessary permits as required by the plan.

The analysis has been projected until 2033 as the discounted financial indicators will not appreciably change even though the probable life of mine will exceed this period with the current resource level that is indicated.

It has been assumed that a more international style design needs to be adopted to provide a higher level of safety along with some application of trackless equipment both in the stope

operation as well in rock handling to the surface haulage trucks. It would be expected that the low labour costs of the PRC would be integrated into the higher productivities of western style design and mining equipment.

The analysis is largely based on operating costs from 2013 through December 2017 which have shown a steady decrease. A summary of this financial analysis is shown (Table 23) with the details of the analysis included in Appendix I. The WGM evaluation is based on the information provided by Mianzhu Norwest, but assumes a project basis (i.e. no opening balances (except for a small amount of opening working capital which is recovered in the last year, i.e. 2033) and all previous costs are sunk). The basic assumptions in the Mianzhu Norwest model extend to the year 2033 starting from 2018. WGM presents this model, with the annual production rate projected to increasing from 372,000 tpa in 2018 to 1.1 Mtpa in 2024 and 1.4 Mtpa in 2028. Also, the WGM model is based on a 3% rate of inflation of both prices and capital and operating costs and an exchange rate of ¥6.2955 per US\$ (February 2018). While WGM believes that labour costs in the PRC will increase in the coming years, the increased capital cost allowed for some mechanization in the mine operations in the business plan should help mitigate these labour cost increases.

The WGM model treats the “mining” operation and the “plant” as separate entities. As a consequence, the mine “sells” its production to the plant at market prices rather than at the cost of production. This represents the vertical integration and “downstream value added” nature of the AsiaPhos operation. As result, the mine is very profitable while the plant is uneconomic as a stand alone operation. The model consolidates the operation to determine the overall value of the mine and plant. The WGM model uses the losses from the plant operation to reduce the taxable income of the consolidated operation (and the corporate taxes). All totals reflect the consolidated operation.

WGM has treated the years 2013 through 2017, as sunk revenue and cost and has discounted the net cash flow going forward to the beginning of 2018. As the financial analysis demonstrates, the production plan of Mianzhu Norwest has robust economics over the 16 years (the discounted period) that have been analysed. The project shows an NPV of ¥1,624 million or US\$258 million (Appendix 1 and in Table 23) at a discount rate of 10%. WGM regards the greatest risk to this analysis is the potential impact of the haulage road from the mine to the Plant during the next three years when the haulage road reconstruction is expected to be completed.

WGM has also conducted an analysis to determine the sensitivity of the project Net Cash Flow to changes in product price and capital and operating costs. The sensitivity tested these variables from -25% to +25% of their Base Case values. As can be seen in the accompanying chart, Figure 16, the net cash flow remains positive even at a 25% decrease in product prices. Also, as would be expected, the project is most sensitive to sales prices, followed by operating costs and is least sensitive to changes in capital costs.

TABLE 23.
SUMMARY OF FINANCIAL ANALYSIS OF ASIAPHOS'S OPERATIONS,
2018-2033

Economic Parameters			
Exchange Rates		6.30 RMB:US\$	
		4.76 RMB:Singapore\$	
Inflation Rate		3.0%	
Mine Life		16 Years	
Phosphorous Rock Mined		17,648,950 tonnes	
Products Sold			
Phosphorous Rock		17,648,950 tonnes	
P4 - Elemental Yellow Phosphorus		358,680 tonnes	
STPP - Sodium Tripolyphosphate		55,717 tonnes	
REVENUE			
Sales Prices	¥/t	US\$/t	S\$/t
Phosphorous Rock	553	\$87.88	\$116.10
P4	17,493	\$2778.66	\$3671.22
STPP	9,390	\$1491.55	\$1970.67
Gross Revenue	¥	US\$	S\$
Phosphorous Rock	9,763,800,000	1,550,900,000	2,049,100,000
P4	6,274,400,000	996,600,000	1,316,800,000
STPP	523,200,000	83,100,000	109,800,000
Total Gross Revenue	16,561,400,000	2,630,600,000	3,475,700,000
OPERATING COSTS			
Operating Costs per Tonne Product	¥/t	US\$/t	S\$/t
Phosphorous Rock	217.85	\$34.60	\$45.72
P4	18,206.70	\$2892.01	\$3820.97
STPP	8,711.50	\$1383.76	\$1828.25
Total Costs	¥	US\$	S\$
Phosphorous Rock	3,844,800,000	610,700,000	806,900,000
P4	6,247,500,000	992,400,000	1,311,100,000
STPP	465,700,000	74,000,000	97,700,000
Total Direct Operating Costs	10,558,000,000	1,677,100,000	2,215,800,000
Plus: Selling Expenses			
General & Administration	135,500,000	21,500,000	28,400,000
	388,600,000	61,700,000	81,600,000
Total Operating Costs	11,082,100,000	1,760,300,000	2,325,800,000
EBITDA	5,479,300,000	870,300,000	1,149,900,000
Less: Depreciation & Amortization	244,000,000	38,800,000	51,200,000
Corporate Taxes	1,347,600,000	214,100,000	282,800,000
Net Operating Profit after Taxes & Dep	3,887,700,000	617,400,000	815,900,000
Net Cash Flow to Project	¥	US\$	S\$
Net Operating Profit after Taxes & Dep	3,887,700,000	617,500,000	815,900,000
Plus: Depreciation	244,000,000	38,800,000	51,200,000
Less: Capital Investment	-31,883,600	-5,100,000	-6,700,000
Changes in Working Capital	47,376,445	7,500,000	9,900,000
Net Cash Flow to Project	4,147,192,845	668,900,000	870,400,000
Internal Rate of Return (IRR)	na		
	¥	US\$	S\$
Net Present Value of NCF disc. At 5%	2,518,500,000	400,000,000	528,500,000
Net Present Value of NCF disc. At 10%	1,624,500,000	258,000,000	340,900,000
Net Present Value of NCF disc. At 15%	1,106,900,000	175,800,000	232,300,000
Net Present Value of NCF disc. At 20%	792,100,000	125,800,000	166,200,000
Payback Period	na		
Working Capital Time Delays (days)			
Accounts Receivable	45 Days		
Accounts Payable	45 Days		
Product Inventory	30 Days		

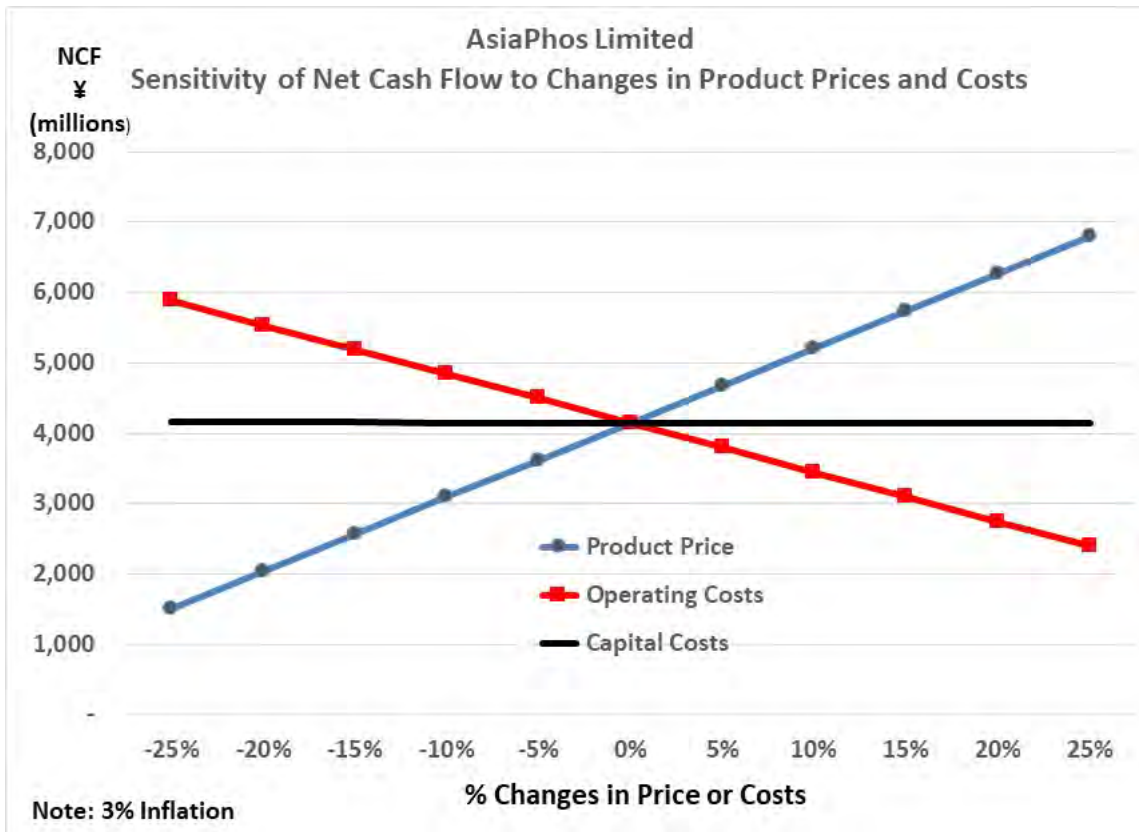


Figure 15. Sensitivity analysis of Mianzhu Norwest net cash flow

The subsequent event of the non-renewal of Mining permit 1 and the uncertainty of the renewal of the permit for mine 2 and the three exploration permits will be of material impact to the projected forecast. The extent to which the loss of the projected benefits can or will be offset by compensation from the government as a result of the non-renewal (expropriation) of the permit(s) is unknown at this time.

23. ADJACENT PROPERTIES

The Mianzhu Norwest Mines, Cheng Qiang Yan and Shi Sun Xi, and the more recent FengTai pending acquisition, are all located in an historic phosphorite mining area that was active until the Wenchuan Earthquake. Cooperation between the neighbouring companies and Mianzhu Norwest was taking place with provision of access during operations and continues to be good cooperation during post-earthquake restoration activities. The recent co-operation efforts include the cost sharing of restoring access to all properties in the appropriate and adjacent water-sheds which provide the main routes of access to the Mianzhu Norwest properties as well as others in the area.

Mianzhu Norwest has provided WGM with the names of the adjacent “neighbours” at Cheng Qiang Yan, being Longman Phosphate Company to the north and Qing Ping Phosphate Mining Company to the east of the current mining license area. Likewise, at Shi Sun Xi the adjacent “neighbours” are the Longman Phosphate Company to the west and An Xian Shi Sun Xi Mining Company to the east.

Since the Wenchuan Earthquake and the Landslide, the efforts of Mianzhu Norwest and all adjacent enterprises had been focused on re-establishing access to their respective sites and restoration of the surface facilities. This access was restored to a very rudimentary state in 2010 and with a few interim setbacks has been continually improving. Adjacent Mines have also been restored to production since 2011.

Mineralization and hosting stratigraphy appear to be similar for all the adjacent operating properties. The adjacent companies work together to maintain access roads and share infrastructure and information when possible and appropriate.

24. OTHER RELEVANT DATA AND INFORMATION

Since the Wenchuan Earthquake, Mianzhu Norwest has restored production of their two mining operations and the processing facilities. In addition to the earthquake damage to the two mines and the four phosphate furnaces and support facilities in Mianzhu City, the haulage road between the mines and the plant was extensively damaged initially in 2008 and again in 2010 by the Landslide causing extensive delays to Mianzhu Norwest's production restoration plans. In 2010 the process plant was relocated from the original Hanwang Town site to the Gongxing industrial zone which included the construction of two new modern 10,000 tpa furnaces and the support infrastructure.

As of December 2017, Mianzhu Norwest had restored production capability on six levels at Cheng Qiang Yan and from six or more levels at Shi Sun Xi.

Mianzhu also continues to work closely with the other mining companies in the area as well as the local and provincial governments to maintain and upgrade as required, the existing roads common to all the operations. Extensive reconstruction of the main highway has facilitated haulage truck movement and only the direct mine access haul roads still require a high degree of caution by all users in the narrow areas. Installation of warnings and traffic controls and stabilization of the highest risk areas should be implemented.

In the fall of 2016, Mianzhu Norwest signed an MOU with Mianyang Aostar Phosphorous Chemical Industry Co. Ltd. one of the biggest manufacturers of yellow phosphorous in PRC to collaborate on certain initiatives. Also for the provision by Mianzhu of up to 100,000 tonnes of rock if required and the collaboration of delivery to third parties of phosphate based chemicals exceeding the respective available inventory or capacity and to explore leveraging electricity rates to mutual benefit.

24.1 ADDITIONAL REQUIREMENTS

Exploration work required to evaluate the potential of the recently acquired property was started in 2015 and continued through 2016 but has been put on hold until road access is re-established. Exploration work will be required to evaluate the potential of the recently acquired FengTai property. No exploration work was completed in 2017.

Further to successive meetings and review sessions with WGM the Mianzhu Norwest Mine Engineering and Geological teams have started to implement data collection and reporting in a manner more consistent with international requirements as well as internal Chinese regulatory standards. These include augmentation of the current database, preparation for the planning of additional drilling to facilitate the conversion of Mineral Resources beyond the

limits of current development as well as reviews and updates of metallurgical, process, environmental, market, economic and related studies.

Among the studies mentioned above is the need to fully assess the quality of the current phosphorite production against the possible processing by the flow sheet for wet process phosphoric acid ("WPPA") to fully evaluate possible alternative markets. The collection of geologic data (drilling, sampling, analytical results), and complete chemical analysis of samples will also establish a basis to more fully understand the electric furnace operations and possibly, make alterations to the process that will enhance the profitability of the overall operations and better control possible environmental impacts.

To-date no comprehensive project feasibility studies has been carried out other than those required for mining permit applications and renewals, such as the 2016 Cheng Qiang Yan Chinese feasibility study required in support of the conversion of the Cheng Qiang Yan exploration permit to a mining permit with an extraction level of 300,000 tonnes per annum.

This document only reports the phosphorite Mineral Resources for the two Mines of Mianzhu Norwest. There are no additional requirements to report that would materially affect the estimation of the Resources other than noted herein.

25. INTERPRETATION AND CONCLUSIONS

WGM's interpretations and conclusions remain that the primary phosphogenesis and accumulation events for the material contained in the phosphorite bed of interest on both Mianzhu Norwest properties occurred in Lower Cambrian times. These are the same events that fostered the deposition of the Meishucun Formation in the area. In the Mianzhu City area, the Meishucun Formation accounts for probably up to 80% of the phosphorite production (pre-earthquake). Between Lower Cambrian times and the Upper Devonian times there was a period of depositional hiatus and erosion. In Upper Devonian times, a marine transgression fostered the "final" erosion of the "Lower Cambrian" phosphorite beds in the area and redeposited this material on the undulating topographic surface previously created at the top of the Upper Sinian Deng Ying Formation. This event was wide spread enough that the local Sichuan Province geological teams created a special "deposit type" and name for the resulting phosphorite bed(s) – the "Shi Fang Type". These geologists have assigned an Upper Devonian age for the Shi Fang type deposit and, locally, assigned the geologic symbol "D₃S¹" for its identification.

The tectonic movements, beginning over 600 million years ago, have formed a suture zone and zone of deformation that includes all of the phosphorite producing area in west of the Mianzhu City area of Sichuan Province. These same tectonic movements have formed a region of intense folding and thrust faulting which greatly complicates the structural geology of the area. More recent events often re-activate these older structures. Based on historical seismic activity, it is reasonable to expect repeat events in the future due to the geologic structures and features. The intensity of the major earthquakes can again reach a Mercalli intensity VIII, and mining operations as well as other construction in the region should be designed accordingly.

The phosphorite Resources controlled by Mianzhu Norwest are higher grade than many of the nearby phosphorite deposits. The high grade and relatively low impurities are favoured by markets. The modern processing facility and vertically integrated operations provides greater operational flexibility.

WGM has estimated the total phosphorite Mineral Resources for Mianzhu Norwest's Cheng Qiang Yan and the Shi Sun Xi properties as presented in Table 24 at December 31, 2017. Table 25 presents the estimated mineral reserves based on projected production estimates for the three year period 2018 to 2020.

TABLE 24.
ESTIMATED PHOSPHORITE RESOURCES FOR CHENG QIANG YAN and SHI SUN XI

		Tonnes (million)	Bed Thk (m)	P ₂ O ₅ (%)
<u>Mining License Area</u>				
Cheng Qiang Yan				
M & I Resource	Measured	<u>2.7</u>	<u>5.91</u>	<u>28.18</u>
	Total	2.7	5.91	28.18
Shi Sun Xi				
M & I Resource	Measured	6.5	6.87	29.35
	Indicated	<u>4.8</u>	<u>5.24</u>	<u>29.09</u>
	Total	11.3	6.17	29.24
Total				
M & I Resource	Measured	9.2	6.59	29.01
	Indicated	<u>4.8</u>	<u>5.24</u>	<u>29.09</u>
	Total	14.0	6.12	29.04
<u>Exploration License Area</u>				
Cheng Qiang Yan				
M & I Resource	Measured	<u>7.0</u>	<u>6.23</u>	<u>25.60</u>
	Total	7.0	6.23	25.60
Shi Sun Xi*				
M & I Resource	Measured	0.03	1.37	19.76
	Indicated	<u>0.5</u>	<u>1.58</u>	<u>20.03</u>
	Total	0.5	1.57	20.02
Total				
M & I Resource	Measured	7.1	6.20	25.57
	Indicated	<u>0.5</u>	<u>1.58</u>	<u>20.03</u>
	Total	7.6	5.89	25.19

Notes: Mineral Resources effective December 31, 2017.

1. WGM Senior Associate Industrial Mineral Specialist, Donald Hains, is the Qualified Person for this Mineral Resource estimate.
2. Mineral Resources are estimated at a cutoff value of 8% P₂O₅ (based on a price of US\$ 60/t P₂O₅), and a minimum phosphorite bed thickness of 0.25 m.
3. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.
5. The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May 10, 2014.
6. S.G. of 3.08 tonnes/m³ and 3.03 tonnes/m³ used for Cheng Qiang Yan and Shi Sun Xi respectively.
7. Indicated amounts may not precisely sum due to rounding.
8. Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.
9. Previous Mineral Resource estimate update was prepared 31 December 2016.
10. Mineral Reserves are in addition to estimates of Mineral Resources.

Table 15 in Section 14 show the same total mineral resources however, with the resources of Mine 1 removed.

The company initiated an underground sampling program in 2016, and complemented this with underground for stope definition drilling at Mine 2 in 2017. The company has acknowledged that the current drilling equipment is not appropriate and needs to be replaced with core drilling equipment. Although the results provided to WGM provided a better understanding of the distribution of the mineralization and allowed for better mine planning, the samples were not collected, recorded and reported in a manner consistent with international industry standards.

TABLE 25.
SUMMARY OF THE MINERAL RESOURCES AND RESERVES FOR MIANZHU NORWEST'S MINES

Category	Mineral Type	Gross Attributable to licence		Net Attributable to Issuer Assumed at 100%			Remarks
		Tonnes (millions)	Grade (P ₂ O ₅ %)	Tonnes (millions)	Grade (P ₂ O ₅ %)	Change from previous update ⁸ (%)	
Reserves							
Proven	Phosphorite	0.9	27.73	0.9	27.73	-18	-200k tonnes
Probable	Phosphorite	<u>0.5</u>	<u>27.11</u>	<u>0.5</u>	<u>27.11</u>	<u>0</u>	
Total		1.4	27.50	1.4	27.50	-13	
Resources							
Measured	Phosphorite	16.2	27.51	16.2	27.51	-2	+200k tonnes
Indicated	Phosphorite	<u>5.3</u>	<u>28.22</u>	<u>5.3</u>	<u>28.22</u>	-53	-6M tonnes
Total		21.6	27.69	21.6	27.69	-1	
Inferred*	Phosphorite	4.0	26.09	4.0	26.09	-77	-13.8M tonnes

* refers to the reduction of Inferred resources for the mine 2 exploration permit as a result of exploration results from 2016/2017.

Notes: Mineral Resources and Reserves effective December 31, 2017.

1. WGM Senior Associate Industrial Mineral Specialist, Donald Hains, is the Qualified Person for this Mineral Resource/Reserve estimate.
2. Mineral Resources are estimated at a cutoff value of 8% P₂O₅ (based on a price of US\$60/t P₂O₅), and a minimum phosphorite bed thickness of 0.25 m.
3. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
4. The quantity and grade of reported Inferred Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.
5. The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May 10, 2014.
6. S.G. of 3.08 tonnes/m³ and 3.03 tonnes/m³ used for Cheng Qiang Yan and Shi Sun Xi respectively.
7. Indicated amounts may not precisely sum due to rounding.
8. Inferred Resource cannot be included in total Resource calculation under NI 43-101 Standard.
9. Previous Mineral Resource estimate update was prepared 31, December 2016.
10. The decreased tonnages in the Measured and Indicated categories are attributed to the upgrading of portions of the resources to the Mineral Reserve category, and to a lesser extent, depletion due to ongoing mining. Note that Mineral Reserves are being reported for the first time for these mines, under NI 43-101 Standard.
11. Estimated Mineral Resources reported are in addition to Mineral Reserves.

Table 18 in Section 14 show the total mineral reserves with the Mine 1 reserves removed.

From a phosphorite quality viewpoint, the phosphorite resources controlled by Mianzhu Norwest are of higher grade than many of the nearby phosphorite deposits. The Shi Fang type of phosphorite deposit has been in production in the region for many years the products produced from the Shi Fang deposits include elemental phosphorous and downstream products as well as fertilizer products from wet process phosphoric acid.

Based on its initial assessment of the data from the Cheng Qiang Yan property and the Lomon property to the west, WGM believes that the phosphorite bed also extends onto the FengTai property.

Recent production forecasts assumed future mining permits would allow increased production quantities as permits are renewed.

The non-renewal of the Mine 1 permit 9 February, 2018 and the uncertainty regarding the Mine 2 permit will severely impact the continued viability of the mining operations.

The processing plant will be able to continue operations provided it is able to acquire raw material (rocks) of sufficient quality and quantity whether from its Mine 2 or other operations or acquired from third parties.

However as the economic analysis has shown, because of its vertically integrated nature the viability of the plant is contingent on obtaining rock at a below market cost.

26. RECOMMENDATIONS

In light of the non-renewal of its Mine 1 mining permit and the uncertainty of the continuation of Mine 2 and the renewal of the other exploration permits previous recommendations to continue with the company's original post-Wenchuan Earthquake business plan will need to be revisited.

In light of the resulting uncertainty the company's main focus should be the pursuit of compensation for the lost potential revenue from the inability to continue its mining operations.

Every effort should also be made to restart mining at its Mine 2 operation and to enhance production from Mine 2 to replace as much of the lost production from Mine 1 as possible.

In order to maintain the fiscal benefits of a vertically integrated company reliant on the high quality of the rock from both the mines in the Qing Ping Town area the company should consider acquiring other mining operations with suitable quality rock within an economic haulage distance from the plant. This includes the scope, schedule and cost of the expansion of production as well as the long-term approach for the operations to reach standards that are more analogous to international best practice taking into consideration current and projected markets.

Should continued mining in the area not be feasible or permitted then the company should also demand compensation for its plant as its viability as part of a vertically integrated operation is dependent of having operating mines. Especially now, that the improved highway access would have allowed for the expansion of operations and their improved operational efficiencies.

In the event that Mining operations will be able to continue at Mine 2 and assuming there are no impediments to renew mining licenses and convert exploration licenses, It is recommended that AsiaPhos extract the maximum value from its exploration work by designing the programs with the perspective to expand existing Mineral Resources and to facilitate their conversion to Mineral Reserves based on NI 43-101 or equivalent standards. Fully involving a QP/CP at the planning stage of such exploration program, would assure the results of the work will be suitable for Mineral Resource or Reserve estimation.

WGM recommends utilizing more extensive exploration drilling to remove more of the risk from mine production and for grade control at the remaining mining operation. Areas of improvement on underground drilling include modifying the drilling equipment to diamond drill or RC drill to collect representative samples; setup a standard procedure on collecting, logging and assaying on drill core samples; better selecting on exploration drilling targets; and better planning on drilling work tasks to ensure proper personnel and consumables are

budgeted. This will allow for the collection of additional geologic information and sampling to allow for more accurate mine planning and provide the data to estimate mineable reserves. All of this however, is subject to satisfactory resolution of the issues on mining stoppage and the risk of non renewals of the permits.

The proposed exploration program has been adjusted to suit the current situation. The proposed budget as presented in Table 26 for 2018 to 2020 is based on WGM's estimate of the work required for Mine 2 based on international practice and will allow for a reasonable program of improved Reserve definition and lower development risk and allow for better mine plans and more accurate production forecasts. Key to future planning is the availability of the required data in a comprehensive unified database hosting all of the existing exploration, development and mining data.

Reconciliation at end of month should be easily accessible and auditable.

The current practices of limited transparency of the amount of work that has been planned and/or completed in the past year also needs to be improved. Whilst a monthly reporting system functions well during operation, there is limited reconciliation in place to keep track of overall production history and productivity. It is proposed to conduct grade control at each stope drop point to maintain a precise and comprehensive database for production reconciliation. Grab and channel sampling could be used to collect samples, and sample locations to be precisely recorded. AsiaPhos should assign a dedicated mining engineer to be fully responsible to maintain such database up to date at all times.

However, the design and planning of the current program only focuses on meeting the government requirement or minimum standard.

With the current government programs to manage the exploitation of low grade and high grade phosphate more detailed data of the grade distribution will allow Mianzhu Norwest to selectively mine the resources for maximum market benefit.

WGM has concluded that the intensity of drilling information necessary to raise the category of Mineral Resources to Mineral Reserves requires at a minimum one sample of the mineralized formation for each 30,000 tonnes of resource.

Based on average stope parameters and phosphate bed thickness each stope contributes approximately 118,000 tonnes of resource thus requiring 4 drill holes per stope.

Because drilling will be from existing footwall haulage drifts in the initial years, an estimate of 40 metres per drill hole has been used in the plan. An allowance of 30% extra drilling has been allowed to accommodate the known irregularities and mineralization offsets caused by faulting.

An interim near term underground sampling program involving only chip samples of mineralization in development stopes should only be considered as a short term solution, until the appropriate underground drilling program can be implemented. The underground sampling program is to collect as many representative samples as possible to complete the database and to cover all working levels. Based on available manpower, the program can be carried out in two phases.

First phase includes chip sampling across entire mineralization in headings near production areas. The sampling will be conducted by mine geologists at locations of their discretion. However, it is strongly suggested that the sampling locations to be marked on mine design drawings and communicated with WGM to ensure the effectiveness of these samples to be used for resource and reserve estimation. The sampling must follow international standard best practice; coordinates of sampling locations must be well documented; and underground mapping should be completed accordingly.

WGM should review the progress and provide further recommendations, including sampling procedure, location and method.

In addition to analysing the samples for the phosphate grade, the program should continue to track all constituents in the rock to establish an information base for future reference in reviewing processing operations, environmental issues, market requirements, etc. The samples may also be used to support bench scale metallurgical testing to support the ongoing operations or evaluation of potential processing options.

The estimate (Table 26) of the exploration requirements considers the loss of Mine 1 and the increased level of mine 2 development and is based on the site visit of November 2017. It has been estimated as follows based on international cost estimates:

TABLE 26.
ESTIMATED ANNUAL REQUIREMENT DEFINITION OF
MINEABLE RESERVES/RESOURCES FOR MIANZHU NORWEST, MINE 2

	2018	2019	2020
Annual Production (tonnes)	23,000	305,000	350,000
Number of Exploration samples based on subsequent year production	8	10	12
Number With Contingency	11	14	17
Drilling Required (metres)	440	560	720
Drilling Cost (US\$ x 1000)	\$66.00	\$84.00	\$108.00
Sampling Cost (US\$)	\$2,423	\$2,889	\$3,634
Footwall Drifting (metres)	100	150	150
Footwall Development (US\$)	\$17,000	\$26,000	\$26,000
Exploration Management and Administration	\$22,000	\$28,000	\$34,000
Total Exploration Cost (US\$ x1,000)	\$107,423	\$140,889	\$171,634

27. DATE AND SIGNATURE PAGE

This report titled "*Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People's Republic of China*" dated March 13, 2018 was prepared and signed by the following author:

Dated effective as of December 31, 2017.

"signed by Donald Hains"

Donald H. Hains, P.Ge.
Senior Associate Industrial Minerals Specialist

"signed by Jack Yue"

Jack Beichen Yue, P.Eng.
Associate Mining Engineer

**DATE AND SIGNATURE PAGE OF
WATTS, GRIFFIS AND McOUAT LIMITED**

The principal author of this report titled "*Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People's Republic of China*" dated March 13, 2018. Donald Hains and Jack Beichen Yue are associates of Watts, Griffis and McOuat Limited (the "Qualified Person"), completed the work under the direct supervision of Joe Hinzer, P.Ge., the President and Director of Watts, Griffis and McOuat Limited.

The Qualified Person and Joe Hinzer as well as other directors and substantial shareholders of WGM and their associates are independent of AsiaPhos Limited, its directors and substantial shareholders.

The Qualified Person and Joe Hinzer as well as other directors and substantial shareholders of WGM and their associates do not have any interest, direct or indirect, in AsiaPhos Limited, its subsidiaries or associated companies and will not receive benefits other than remuneration paid to the Qualified Person in connection with the Qualified Person's report.

Remuneration paid to the Qualified Person or WGM in connection with this report is not dependent on the findings of this report.

Dated March 13, 2018.

"signed by Joe Hinzer"

Joe Hinzer, P.Ge.
President and Director

CERTIFICATE

I, Donald H. Hains, hereby certify that:

1. I reside at 2275 Lakeshore Blvd. West, Suite 515, Toronto, Ontario, Canada, M8V3Y3.
2. I am a Senior Associate Industrial Minerals Specialist with Watts, Griffis and McOuat Limited, a firm of consulting geologists and engineers, which has been authorized to practice professional engineering by Professional Engineers Ontario since 1969, and professional geoscience by the Association of Professional Geoscientists of Ontario.
3. This certificate accompany the report titled "*Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People's Republic of China*" dated March 13, 2018.
4. I am a graduate from the Dalhousie University, Ontario with a MBA (Finance & Marketing) Degree in 1976, and from Queen's University, Ontario, Canada with a Honours B.A. (Chemistry) Degree in 1974.
5. I am a Professional Geoscientist licensed by Association of Professional Geoscientists of Ontario (Membership #0494). I am also a member of: the Society for Mining, Metallurgy and Exploration (#4175075), the American Ceramics Society (#48643), Metallurgical Society of AIME (#45887), Society Manufacturing Engineers (#2866887), Technical Association Pulp & Paper Industry, Canadian Institute of Mining and Metallurgy (#93478), and the Prospectors and Developers Association of Canada (#1026).
6. I have practised my profession as a geoscientist continuously since 1976. My experience with phosphate mining and processing projects includes the following:
 - NI 43-101 report on the Lianlianping Phosphate Mine, Hubei Province, PRC, May 2009;
 - Resource estimate, scoping study and valuation of a proposed phosphate mine and SSP plant in Brazil, 2002;
 - Due diligence technical assistance to joint-venture partner for Martison phosphate project, Ontario, Canada, 2008-2009;
 - NI 43-101 reports for Mantaro phosphate project, Peru, 2007, 2008, 2010;
 - Due diligence technical review and QP supervision of Paris Hills phosphate project, Paris Hills, Idaho, USA;
 - Review and analysis of phosphate exploration projects by Ma'aden, Kingdom of Saudi Arabia, 2010-2011;
 - Due diligence technical review of various phosphate projects in Mexico, 2009, 2011 and 2012;
 - Due diligence technical review of phosphate exploration project, Togo, West Africa, 2009;
 - Due diligence technical review of phosphate exploration project, Ferni district, British Columbia, 2009; and
 - Review of Cargill Township phosphate project, Ontario, 1998.

7. I have read the definition of “qualified person” set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
8. I have read the definition of "qualified person" set out under Section B of the Listing Manual of the SGX-ST (the "Catalist Rules") and certify that I fulfill the requirements to be a "qualified person" for the purposes of the Catalist Rules.
9. I have visited the Cheng Qiang Yan Phosphate and Shi Sun Xi Phosphate properties several times most recently November 7-9, 2017.
10. I am fully responsible for all Sections of this report.
11. I am independent of the issuer as described in Section 1.5 of NI 43-101.
12. I have not worked for AsiaPhos Limited in the Property areas or elsewhere.
13. I have read NI 43-101, Form 43-101F1 and the technical report and have prepared the technical report in compliance with the standards as pertaining to NI 43-101, Form 43-101F1 and generally accepted Canadian mining industry practice.
14. As of the date of the technical report, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

“signed by Donald Hains”

Donald H. Hains
March 13, 2018

CERTIFICATE

I, Jack Beichen Yue, hereby certify that:

1. I reside at 1051 Bur Oak Ave., Markham, Ontario, L6H 1E6,, Canada.
2. I am an Associate Mining Engineer with Watts, Griffis and McOuat Limited, a firm of consulting geologists and engineers, which has been authorized to practice professional engineering by Professional Engineers Ontario since 1969, and professional geoscience by the Association of Professional Geoscientists of Ontario.
3. This certificate accompany the report titled "*Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People's Republic of China*" dated March 13, 2018.
4. I am a graduate from the University of Toronto, Ontario with a B.A.Sc. (Mine Engineering), 2008.
5. I am a Professional Engineer licensed by Professional Engineers Ontario (#100148667).
6. I have practised my profession as an engineer continuously since 2008. My experience with phosphate mining and processing projects includes the following:
 - NI 43-101 reports on AsiaPhos Cheng Qiang Yan Phosphate and Shi Sun Xi Phosphate mining properties on February 23-March 3, 2010, November 27-28, 2011, May 31, 2012, November 26-28, 2012, November 25-30, 2013, April 22-23, 2014, and October 23-25, 2015 and March 17, 2017;
7. I have read the definition of "qualified person" set out in the National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
8. I have read the definition of "qualified person" set out under Section B of the Listing Manual of the SGX-ST (the "Catalist Rules") and certify that I fulfill the requirements to be a "qualified person" for the purposes of the Catalist Rules.
9. My most recent visit to the Cheng Qiang Yan Phosphate and Shi Sun Xi Phosphate properties was on November 7-11 2017
10. I am co-responsible for Sections 16, 17, 18, 21 and 26 of this report.
11. I am independent of the issuer as described in Section 1.5 of NI 43-101.
12. I have not worked for AsiaPhos Limited in the Property areas or elsewhere.

13. I have read NI 43-101, Form 43-101F1 and the technical report and have prepared the technical report in compliance with the standards as pertaining to NI 43-101, Form 43-101F1 and generally accepted Canadian mining industry practice.
14. As of the date of the technical report, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

“signed by Jack Yue”

Jack Beichen Yue, P.Eng.
March 13, 2018

CONSENT OF QUALIFIED PERSON

Dear Sirs/Mesdames:

Re: AsiaPhos Limited (the “Company”)

I, Donald H. Hains, P.Geo., Senior Associate Industrial Mineral Specialist of Watts, Griffis and McOuat Limited, do hereby consent to the filing of the technical report entitled "*Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People's Republic of China*" dated March 13, 2018 (the “Technical Report”).

I also consent to any extracts from or a summary of the Technical Report and to the public filing of the Technical Report with the securities regulatory authorities and stock exchange.

I confirm that I have reviewed the information and confirm that the information presented therein is accurate, balanced, complete and not inconsistent with the WGM Technical Report.

Dated this 13th day of March, 2018.

Yours truly,

“signed by Donald Hains”

Donald H. Hains, P.Geo.,
Senior Associate Industrial Mineral Specialist

CONSENT OF QUALIFIED PERSON

Dear Sirs/Mesdames:

Re: AsiaPhos Limited (the “Company”)

I, Jack Beichen Yue, P.Eng., Associate Engineer of Watts, Griffis and McOuat Limited, do hereby consent to the filing of the technical report entitled "*Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People’s Republic of China*" dated March 13, 2018 (the “Technical Report”).

I also consent to any extracts from or a summary of the Technical Report and to the public filing of the Technical Report with the securities regulatory authorities and stock exchange.

I confirm that I have reviewed the information and confirm that the information presented therein is accurate, balanced, complete and not inconsistent with the WGM Technical Report.

Dated this 13th day of March, 2018.

Yours truly,

“signed by Jack Yue”

Jack Beichen Yue, P.Eng.
Associate Mining Engineer

REFERENCES

- AsiaPhos Limited
2017 <http://www.cnchemicals.com/Product/Newsletter/209/Phosphorus-Industry-China-Monthly-Report>
- 2013 *Offering Document*, dated September 25, 2013.
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- May 2014 *Sichuan Mianzhu Norwest Phosphate Chemicals Company Limited (Cheng Qiang Yan mine), additional exploration report*.
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- United States Geological Survey
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- 1980 *Principles of a Resource/Reserve Classification for Minerals in Geological Survey Circular 831*.
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Watts, Griffis and McOuat Limited

- Mar.17, 2017 *Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People's Republic of China.* Prepared by Donald H. Hains, and Jack Beichen Yue.
- Mar.9, 2016 *Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, and FengTai Exploration Property, Mianzhu City, Sichuan Province, People's Republic of China.* Prepared by Donald H. Hains, and Jack Beichen Yue.
- Nov.21, 2014 *An Updated Technical Review of AsiaPhos Limited Cheng Qiang Yan and Shi Sun Xi Phosphate Deposits, Mianzhu City, Sichuan Province, People's Republic of China.* Prepared by Donald H. Hains.
- Nov.14, 2014 *Site Visit Report, Cheng Qiang Yan Phosphate Deposit and Shi Sun Xi Phosphate Deposit, Mianzhu City, Sichuan Province, People's Republic of China for AsiaPhos Limited.* Prepared by Donald Hains.
- Mar.28. 2014 *An Updated Technical Review of the Cheng Qiang Yan Phosphate Deposit and Shi Sun Xi Phosphate Deposit, Mianzhu City, Sichuan Province, People's Republic of China for AsiaPhos Limited.* Prepared by Donald H. Hains, Jack Beichen Yue, and William Glover.
- Feb.28, 2013 *A Technical Review of the Cheng Qiang Yan Phosphate Deposit and Shi Sun Xi Phosphate Deposit, Mianzhu City, Sichuan Province, People's Republic of China for AsiaPhos Private Limited.* Prepared by Donald H. Hains and G. Ross MacFarlane.
- June 15, 2010 *A Technical Review Of The Cheng Qiang Yan Phosphate Deposit And Shi Sun Xi Phosphate Deposit, Mianzhu City, Sichuan Province, People's Republic Of China For Sichuan Mianzhu Norwest Phosphate Chemical Company Limited.* Prepared By James Spalding and Ross MacFarlane.
- April 5, 2010 *Letter Report Re Trip Report To Norwest Phosphate Chemical Operations, China* by Ross MacFarlane.

NOTE: Not all Sections from all Chinese reports, cited above, have been translated into English for this Technical report.

APPENDICES

**APPENDIX 1:
FINANCIAL ANALYSIS**

AsiaPhos Limited
Cheng Qiang Yan and Shi Sun Xi Phosphate Projects

	Units	¥/t	Total/ Average	2018	2019	2020	2021	2022	2023	2024	2025
MINING OPERATION											
PRODUCTION and SALES											
Rock Mined	t		17,648,950	372	482	608	768	825	872	1,075	1,264
Untreated Rock Sold											
Externally	t		13,882,807	188,809	288,937	409,186	563,194	614,514	654,948	851,228	1,034,109
Internally	t		3,766,142	183,456	192,629	198,408	204,360	210,491	216,805	223,310	230,009
Total Untreated Rock Sold	t		17,648,950	372,265	481,566	607,594	767,554	825,004	871,754	1,074,537	1,264,117
Sales Price	¥/t		¥553	¥421	¥434	¥447	¥460	¥474	¥488	¥503	¥518
Total Mine Revenue	k¥		9,763,823	156,701	208,792	271,336	353,054	390,864	425,403	540,089	654,438
OPERATING COSTS											
		¥/t rock									
Subcontract labour	k¥	¥125.63	2,217,189	35,589	47,420	61,622	80,179	88,762	96,608	122,648	148,610
Transportation	k¥	¥53.00	935,316	15,013	20,004	25,999	33,826	37,447	40,754	51,739	62,688
Production costs	k¥	¥24.86	438,703	7,040	9,381	12,188	15,858	17,556	19,109	24,263	29,403
Resource tax	k¥	¥0.96	17,020	275	366	474	614	677	732	935	1,138
Production incentive	k¥	¥4.46	78,645	1,261	1,808	2,438	3,238	3,525	3,759	4,773	5,721
Salary & wages of mining dept	k¥	¥1.08	19,022	804	844	886	931	977	1,026	1,078	1,131
Repairs and maintenance of mining equipment an	k¥	¥7.87	138,884	1,850	2,514	3,330	4,413	4,983	5,527	7,156	8,836
Mine Share of Selling Costs	k¥	¥4.42	77,995	2,623	3,047	3,492	3,964	4,155	4,319	4,790	5,183
Mine Share of General & Administration	k¥	¥7.80	137,622	3,907	4,725	5,643	6,690	7,073	7,389	8,523	9,493
TOTAL CASH OPERATING COSTS	k¥	¥230.06	4,060,395	68,362	90,109	116,072	149,713	165,155	179,223	225,904	272,202
EBITDA	k¥	¥323.16	5,703,428	88,339	118,683	155,264	203,341	225,709	246,179	314,184	382,236
Less: Depreciation & Amortization	k¥	¥8.54	-150,651	-5,716	-6,813	-9,952	-10,806	-11,688	-12,245	-11,861	-11,622
Corporate Taxes	k¥	¥80.66	-1,423,631	-21,859	-29,436	-38,575	-50,588	-56,174	-61,285	-78,279	-95,285
Net Mine Profit after D&A and Taxes	k¥	¥233.96	4,129,146	60,764	82,434	106,737	141,947	157,847	172,650	224,045	275,329
NET CASH FLOW TO MINING OPERATIONS											
Net Mine Profit after D&A and Taxes	k¥	¥233.96	4,129,146	60,764	82,434	106,737	141,947	157,847	172,650	224,045	275,329
Plus: Depreciation & Amortization	k¥	¥8.54	150,651	5,716	6,813	9,952	10,806	11,688	12,245	11,861	11,622
Less: Capital Investment	k¥	¥1.81	-31,884	-23,094	-8,790	-	-	-	-	-	-
Changes in Working Capital	k¥	¥1.65	29,164	-2,916	-10,646	-12,786	-16,710	-7,744	-7,078	-23,466	-23,406
Net Cash Flow to Mining Operations	k¥	¥242.34	4,277,078	40,469	69,812	103,903	136,043	161,792	177,817	212,439	263,544
Accumulated NCF to Mining Operations	k¥	¥242.34	4,277,078	40,469	110,281	214,184	350,227	512,018	689,835	902,274	1,165,819
Net Present Value of Mine NCF Disc. @	%				5%		10%		15%		20%
	k¥				¥2,619,889		¥1,705,588		¥1,173,538		¥848,188
	kUS\$				\$416,151		\$270,921		\$186,408		\$134,729
	kS\$				S\$549,827		S\$357,945		S\$246,286		S\$178,006

AsiaPhos Limited
Cheng Qiang Yan and Shi Sun Xi Phosphate Projects

	Units	¥/t	Total/ Average	2018	2019	2020	2021	2022	2023	2024	2025
PLANT OPERATIONS											
P4 - Elemental Yellow Phosphorus											
Tonnes P4 Produced	t	<u>¥/t P4</u>	358,680	17,472	18,346	18,896	19,463	20,047	20,648	21,268	21,906
Sales Price	¥/t		¥17,493	¥13,631	¥14,039	¥14,461	¥14,894	¥15,341	¥15,802	¥16,276	¥16,764
Total P4 Revenue	k¥	¥17,493	6,274,435	238,153	257,563	273,248	289,889	307,543	326,273	346,143	367,223
OPERATING COSTS											
Phosphorous rock											
Ratio Phosphorous Rock:P4		<u>¥/t P4</u>	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Phosphorous rock Required	t		3,766,142	183,456	192,629	198,408	204,360	210,491	216,805	223,310	230,009
Cost of Phosphorus Rock	¥/t	¥540	¥540	¥421	¥434	¥447	¥460	¥474	¥488	¥503	¥518
Total Cost Phosphorous Rock	k¥	¥5,672	2,034,560	77,224	83,518	88,604	94,000	99,725	105,798	112,241	119,076
Coal	k¥	¥1,364	489,327	18,573	20,087	21,310	22,608	23,985	25,445	26,995	28,639
Coke	k¥	¥2,118	759,531	28,829	31,178	33,077	35,092	37,229	39,496	41,901	44,453
Silica dioxide	k¥	¥409	146,880	5,575	6,029	6,396	6,786	7,199	7,638	8,103	8,596
Electrodes	k¥	¥680	243,974	9,260	10,015	10,625	11,272	11,958	12,687	13,459	14,279
Water	k¥	¥5	1,818	69	75	79	84	89	95	100	106
Total raw materials	k¥	¥10,249	3,676,088	139,530	150,901	160,092	169,841	180,184	191,158	202,799	215,150
Labour	k¥	¥159	56,997	2,163	2,339	2,482	2,633	2,794	2,964	3,144	3,336
Production/Maintenance	k¥	¥51	18,131	688	744	790	838	889	943	1,000	1,061
Electricity	k¥	¥6,960	2,496,307	94,750	102,472	108,713	115,333	122,357	129,809	137,714	146,101
P4 Share of Selling Costs	k¥	¥3.04	53,586	3,986	3,759	3,517	3,255	3,269	3,313	3,070	2,908
P4 Share of General & Administration	k¥	¥13.32	235,141	14,984	14,716	14,356	13,886	14,071	14,330	13,818	13,478
Total Operating Costs	k¥	¥18,223	6,536,250	256,102	274,933	289,949	305,787	323,564	342,515	361,545	382,034
Net P4 Income before Taxes, D&A	k¥	¥730	-261,815	-17,948	-17,370	-16,701	-15,897	-16,020	-16,243	-15,403	-14,811
STPP - Sodium Tripolyphosphate											
Tonnes STPP Produced and Sold	t	<u>¥/t STPP</u>	55,717	1,000	1,150	1,323	1,521	1,749	2,011	2,313	2,660
STPP Price	¥/t		¥9,390	¥6,887	¥7,094	¥7,306	¥7,526	¥7,751	¥7,984	¥8,223	¥8,470
Total STPP Revenue	k¥	¥9,390	523,193	6,887	8,158	9,663	11,445	13,557	16,058	19,021	22,531
OPERATING COSTS											
Raw materials											
Phosphoric Acid	k¥	¥5,045.17	281,104	3,700	4,383	5,192	6,149	7,284	8,628	10,220	12,105
Alkali	k¥	¥2,059.00	114,723	1,510	1,789	2,119	2,510	2,973	3,521	4,171	4,940
Water	k¥	¥13.15	733	10	11	14	16	19	22	27	32
Coal	k¥	¥134.39	7,488	99	117	138	164	194	230	272	322
Natural Gas	k¥	-	-	-	-	-	-	-	-	-	-
Total raw materials	k¥	¥7,251.72	404,048	5,319	6,300	7,462	8,839	10,470	12,401	14,689	17,400
Labour	k¥	¥575.10	32,043	422	500	592	701	830	983	1,165	1,380
Maintenance	k¥	¥161.55	9,001	118	140	166	197	233	276	327	388
Electricity	k¥	¥369.08	20,564	269	320	380	451	535	634	750	887
STPP Share of Selling Costs	k¥	¥0.22	3,953	115	119	124	129	144	163	169	178
STPP Share of General & Administration	k¥	¥0.90	15,836	387	417	454	490	555	631	679	739
Total Operating Costs	k¥	¥8,712.62	485,445	6,630	7,795	9,179	10,807	12,767	15,089	17,779	20,972
Net STPP Income before Taxes, D&A	k¥	¥677.49	37,748	257	362	484	639	790	970	1,242	1,559

AsiaPhos Limited
Cheng Qiang Yan and Shi Sun Xi Phosphate Projects

	Units	¥/t	Total/ Average	2018	2019	2020	2021	2022	2023	2024	2025
PLANT SUMMARY											
Net P4 Income	k¥	¥729.94	-261,815	-17,948	-17,370	-16,701	-15,897	-16,020	-16,243	-15,403	-14,811
Net STPP Income	k¥	¥677.49	37,748	257	362	484	639	790	970	1,242	1,559
Total Net Income	k¥	¥540.70	-224,067	-17,692	-17,008	-16,217	-15,259	-15,230	-15,273	-14,161	-13,253
EBITDA Plant											
Less: Depreciation & Amortization	k¥	¥540.70	-224,067	-17,692	-17,008	-16,217	-15,259	-15,230	-15,273	-14,161	-13,253
Corporate Taxes	k¥	¥225.35	-93,385	-7,758	-8,080	-8,286	-8,497	-8,716	-8,941	-9,174	-9,415
Net Operating Profit	k¥	¥766.05	-317,451	-25,450	-25,088	-24,502	-23,756	-23,946	-24,214	-23,335	-22,668
NET CASH FLOW TO PLANT											
Net Operating Profit	k¥	¥17.99	-317,451	-25,450	-25,088	-24,502	-23,756	-23,946	-24,214	-23,335	-22,668
Plus: Depreciation & Amortization	k¥	¥5.29	93,385	7,758	8,080	8,286	8,497	8,716	8,941	9,174	9,415
Less: Capital Investment	k¥	-	-	-	-	-	-	-	-	-	-
Changes in Working Capital	k¥	¥1.03	18,212	-1,821	-1,833	-1,319	-1,400	-1,485	-1,576	-1,671	-1,773
Net Cash Flow to Plant	k¥	¥11.66	-205,854	-19,513	-18,640	-17,536	-16,659	-16,715	-16,848	-15,832	-15,026
Accumulated NCF to Plant	k¥	¥11.66	-205,854	-19,513	-38,154	-55,690	-72,349	-89,064	-105,912	-121,744	-136,770
Net Present Value of NCF Disc. @											
	k¥				5%		10%		15%		20%
	kUS\$				¥157,533		¥124,790		¥102,037		¥85,777
	kS\$				\$25,023		\$19,822		\$16,208		\$13,625
					S\$33,061		S\$26,189		S\$21,414		S\$18,002

AsiaPhos Limited
Cheng Qiang Yan and Shi Sun Xi Phosphate Projects

	Units	¥/t	Total/ Average	2018	2019	2020	2021	2022	2023	2024	2025
CONSOLIDATED NET CASH FLOW											
Revenue											
Mine	kM		9,763,823	156,701	208,792	271,336	353,054	390,864	425,403	540,089	654,438
Plant	kM		6,797,628	245,040	265,720	282,911	301,335	321,100	342,331	365,164	389,753
Total Revenue	kM		16,561,452	401,741	474,512	554,247	654,389	711,964	767,734	905,253	1,044,191
Operating Costs											
Mine	kM		4,060,395	68,362	90,109	116,072	149,713	165,155	179,223	225,904	272,202
Plant	kM		7,021,695	262,732	282,728	299,128	316,593	336,331	357,604	379,325	403,006
Total Operating Costs	kM		11,082,090	331,094	372,837	415,200	466,306	501,486	536,827	605,229	675,208
EBITDA											
Mine	kM		5,703,428	88,339	118,683	155,264	203,341	225,709	246,179	314,184	382,236
Plant	kM		-224,067	-17,692	-17,008	-16,217	-15,259	-15,230	-15,273	-14,161	-13,253
Total EBITDA	kM		5,479,362	70,647	101,675	139,047	188,083	210,479	230,907	300,024	368,983
Less: Depreciation & Amortization	kM		-244,036	-13,473	-14,893	-18,238	-19,303	-20,404	-21,186	-21,035	-21,037
Corporate Taxes	kM		-1,347,579	-15,408	-23,069	-32,352	-44,549	-50,084	-55,125	-72,336	-89,506
Net Operating Profit after Taxes & D&A	kM		3,887,747	41,765	63,713	88,458	124,231	139,992	154,596	206,653	258,440
NET CASH FLOW TO CONSOLIDATED PROJECT											
Net Operating Profit after Taxes & D&A	kM		3,887,747	41,765	63,713	88,458	124,231	139,992	154,596	206,653	258,440
Plus: Depreciation & Amortization	kM		244,036	13,473	14,893	18,238	19,303	20,404	21,186	21,035	21,037
Less: Capital Investment	kM		-31,884	-23,094	-8,790	-	-	-	-	-	-
Changes in Working Capital	kM		47,376	-4,738	-12,278	-14,106	-18,110	-9,229	-8,654	-25,137	-25,179
Net Cash Flow to Consolidated Project	kM		4,147,275	27,407	57,538	92,589	125,424	151,166	167,129	202,550	254,298
Accumulated NCF to Consolidated Project	kM		4,147,275	27,407	84,945	177,534	302,958	454,125	621,253	823,804	1,078,101
Net Present Value of NCF Disc. @	%										
	kM				5%		10%		15%		20%
	kUS\$				¥2,518,537		¥1,624,510		¥1,106,942		¥792,093
	kS\$				\$400,052		\$258,042		\$175,830		\$125,818
					S\$528,556		S\$340,930		S\$232,310		S\$166,234

AsiaPhos Limited
Cheng Qiang Yan and Shi Sun Xi Phosphate Projects

	Units	¥/t	Total/ Average	2026	2027	2028	2029	2030	2031	2032	2033
MINING OPERATION											
PRODUCTION and SALES											
Rock Mined	t		17,648,950	1,282	1,408	1,421	1,431	1,443	1,454	1,466	1,479
Untreated Rock Sold											
Externally	t		13,882,807	1,045,202	1,163,900	1,169,629	1,172,554	1,176,245	1,179,579	1,183,021	1,187,753
Internally	t		3,766,142	236,909	244,016	251,337	258,877	266,643	274,643	282,882	291,368
Total Untreated Rock Sold	t		17,648,950	1,282,111	1,407,917	1,420,966	1,431,431	1,442,888	1,454,222	1,465,903	1,479,121
Sales Price	¥/t		¥553	¥533	¥549	¥566	¥583	¥600	¥618	¥637	¥656
Total Mine Revenue	k¥		9,763,823	683,666	773,272	803,852	834,066	865,964	898,949	933,355	970,024
OPERATING COSTS											
		¥/t rock									
Subcontract labour	k¥	¥125.63	2,217,189	155,251	175,595	182,537	189,393	196,637	204,129	211,940	220,271
Transportation	k¥	¥53.00	935,316	65,490	74,070	77,002	79,902	82,952	86,104	89,405	92,918
Production costs	k¥	¥24.86	438,703	30,719	34,747	36,121	37,475	38,915	40,398	41,939	43,590
Resource tax	k¥	¥0.96	17,020	1,192	1,352	1,407	1,460	1,515	1,571	1,627	1,686
Production incentive	k¥	¥4.46	78,645	5,811	6,440	6,505	6,557	6,614	6,671	6,730	6,796
Salary & wages of mining dept	k¥	¥1.08	19,022	1,188	1,247	1,310	1,375	1,444	1,516	1,592	1,672
Repairs and maintenance of mining equipment and	k¥	¥7.87	138,884	9,411	10,855	11,510	12,181	12,899	13,655	14,454	15,309
Mine Share of Selling Costs	k¥	¥4.42	77,995	5,294	5,569	5,676	5,778	5,879	5,978	6,075	6,171
Mine Share of General & Administration	k¥	¥7.80	137,622	9,653	10,289	10,425	10,544	10,661	10,769	10,870	10,969
TOTAL CASH OPERATING COSTS	k¥	¥230.06	4,060,395	284,009	320,165	332,493	344,666	357,516	370,793	384,633	399,381
EBITDA	k¥	¥323.16	5,703,428	399,657	453,108	471,360	489,400	508,447	528,156	548,721	570,643
Less: Depreciation & Amortization	k¥	¥8.54	-150,651	-11,527	-10,986	-10,778	-9,918	-9,167	-6,417	-5,854	-5,304
Corporate Taxes	k¥	¥80.66	-1,423,631	-99,633	-112,988	-118,319	-122,316	-127,078	-132,005	-137,150	-142,661
Net Mine Profit after D&A and Taxes	k¥	¥233.96	4,129,146	288,497	329,134	342,263	357,165	372,203	389,734	405,718	422,678
NET CASH FLOW TO MINING OPERATIONS											
Net Mine Profit after D&A and Taxes	k¥	¥233.96	4,129,146	288,497	329,134	342,263	357,165	372,203	389,734	405,718	422,678
Plus: Depreciation & Amortization	k¥	¥8.54	150,651	11,527	10,986	10,778	9,918	9,167	6,417	5,854	5,304
Less: Capital Investment	k¥	¥1.81	-31,884	-	-	-	-	-	-	-	-
Changes in Working Capital	k¥	¥1.65	29,164	-6,003	-18,358	-6,286	-6,213	-6,559	-6,784	-7,076	191,196
Net Cash Flow to Mining Operations	k¥	¥242.34	4,277,078	294,020	321,761	346,755	360,871	374,810	389,367	404,496	619,178
Accumulated NCF to Mining Operations	k¥	¥242.34	4,277,078	1,459,839	1,781,601	2,128,356	2,489,227	2,864,037	3,253,403	3,657,900	4,277,078
Net Present Value of Mine NCF Disc. @	%										
	k¥										
	kUS\$										
	kS\$										

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	Units	¥/t	Total/ Average	2026	2027	2028	2029	2030	2031	2032	2033
PLANT OPERATIONS											
P4 - Elemental Yellow Phosphorus											
Tonnes P4 Produced	t	<u>¥/t P4</u>	358,680	22,563	23,240	23,937	24,655	25,395	26,156	26,941	27,749
Sales Price	¥/t		¥17,493	¥17,267	¥17,785	¥18,318	¥18,868	¥19,434	¥20,017	¥20,617	¥21,236
Total P4 Revenue	k¥	¥17,493	6,274,435	389,587	413,313	438,483	465,187	493,517	523,572	555,457	589,285
OPERATING COSTS											
Phosphorous rock											
Ratio Phosphorous Rock:P4		<u>¥/t P4</u>	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Phosphorous rock Required	t		3,766,142	236,909	244,016	251,337	258,877	266,643	274,643	282,882	291,368
Cost of Phosphorus Rock	¥/t	¥540	¥540	¥533	¥549	¥566	¥583	¥600	¥618	¥637	¥656
Total Cost Phosphorous Rock	k¥	¥5,672	2,034,560	126,328	134,021	142,183	150,842	160,029	169,774	180,114	191,083
Coal	k¥	¥1,364	489,327	30,383	32,233	34,196	36,279	38,488	40,832	43,319	45,957
Coke	k¥	¥2,118	759,531	47,160	50,032	53,079	56,312	59,741	63,379	67,239	71,334
Silica dioxide	k¥	¥409	146,880	9,120	9,675	10,265	10,890	11,553	12,256	13,003	13,795
Electrodes	k¥	¥680	243,974	15,149	16,071	17,050	18,088	19,190	20,359	21,598	22,914
Water	k¥	¥5	1,818	113	120	127	135	143	152	161	171
Total raw materials	k¥	¥10,249	3,676,088	228,252	242,153	256,900	272,546	289,143	306,753	325,434	345,253
Labour	k¥	¥159	56,997	3,539	3,755	3,983	4,226	4,483	4,756	5,046	5,353
Production/Maintenance	k¥	¥51	18,131	1,126	1,194	1,267	1,344	1,426	1,513	1,605	1,703
Electricity	k¥	¥6,960	2,496,307	154,998	164,438	174,452	185,076	196,347	208,305	220,991	234,449
P4 Share of Selling Costs	k¥	¥3.04	53,586	3,017	2,977	3,096	3,222	3,351	3,482	3,616	3,749
P4 Share of General & Administration	k¥	¥13.32	235,141	13,917	13,914	14,386	14,874	15,364	15,858	16,351	16,837
Total Operating Costs	k¥	¥18,223	6,536,250	404,849	428,431	454,085	481,289	510,115	540,666	573,042	607,344
Net P4 Income before Taxes, D&A	k¥	\$730	-261,815	-15,262	-15,118	-15,602	-16,102	-16,598	-17,094	-17,585	-18,060
STPP - Sodium Tripolyphosphate											
Tonnes STPP Produced and Sold	t	<u>¥/t STPP</u>	55,717	3,059	3,518	4,046	4,652	5,350	6,153	7,076	8,137
STPP Price	¥/t		¥9,390	¥8,724	¥8,986	¥9,255	¥9,533	¥9,819	¥10,114	¥10,417	¥10,730
Total STPP Revenue	k¥	¥9,390	523,193	26,687	31,611	37,444	44,352	52,535	62,228	73,709	87,308
OPERATING COSTS											
Raw materials											
Phosphoric Acid	k¥	¥5,045.17	281,104	14,339	16,984	20,118	23,830	28,226	33,434	39,603	46,909
Alkali	k¥	¥2,059.00	114,723	5,852	6,932	8,210	9,725	11,520	13,645	16,162	19,144
Water	k¥	¥13.15	733	37	44	52	62	74	87	103	122
Coal	k¥	¥134.39	7,488	382	452	536	635	752	891	1,055	1,250
Natural Gas	k¥	-	-	-	-	-	-	-	-	-	-
Total raw materials	k¥	¥7,251.72	404,048	20,610	24,413	28,917	34,252	40,571	48,057	56,923	67,425
Labour	k¥	¥575.10	32,043	1,634	1,936	2,293	2,716	3,218	3,811	4,514	5,347
Maintenance	k¥	¥161.55	9,001	459	544	644	763	904	1,071	1,268	1,502
Electricity	k¥	¥369.08	20,564	1,048	1,238	1,470	1,744	2,067	2,448	2,897	3,425
STPP Share of Selling Costs	k¥	¥0.22	3,953	207	228	264	307	357	414	480	555
STPP Share of General & Administration	k¥	¥0.90	15,836	852	951	1,098	1,268	1,462	1,685	1,939	2,230
Total Operating Costs	k¥	¥8,712.62	485,445	24,811	29,309	34,687	41,050	48,579	57,485	68,022	80,485
Net STPP Income before Taxes, D&A	k¥	¥677.49	37,748	1,877	2,302	2,757	3,302	3,956	4,742	5,687	6,823

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	Units	¥/t	Total/ Average	2026	2027	2028	2029	2030	2031	2032	2033
PLANT SUMMARY											
Net P4 Income	k¥	¥729.94	-261,815	-15,262	-15,118	-15,602	-16,102	-16,598	-17,094	-17,585	-18,060
Net STPP Income	k¥	¥677.49	37,748	1,877	2,302	2,757	3,302	3,956	4,742	5,687	6,823
Total Net Income	k¥	¥540.70	-224,067	-13,386	-12,816	-12,845	-12,800	-12,642	-12,352	-11,898	-11,237
EBITDA Plant	k¥	¥540.70	-224,067	-13,386	-12,816	-12,845	-12,800	-12,642	-12,352	-11,898	-11,237
Less: Depreciation & Amortization	k¥	¥225.35	-93,385	-9,664	-9,922	1,015	-1,446	-1,461	-1,478	-1,386	-176
Corporate Taxes	k¥	-	-	-	-	-	-	-	-	-	-
Net Operating Profit	k¥	¥766.05	-317,451	-23,050	-22,738	-11,829	-14,246	-14,103	-13,830	-13,284	-11,413
NET CASH FLOW TO PLANT											
Net Operating Profit	k¥	¥17.99	-317,451	-23,050	-22,738	-11,829	-14,246	-14,103	-13,830	-13,284	-11,413
Plus: Depreciation & Amortization	k¥	¥5.29	93,385	9,664	9,922	-1,015	1,446	1,461	1,478	1,386	176
Less: Capital Investment	k¥	-	-	-	-	-	-	-	-	-	-
Changes in Working Capital	k¥	¥1.03	18,212	-1,881	-1,996	-2,117	-2,246	-2,383	-2,528	-2,682	46,725
Net Cash Flow to Plant	k¥	¥11.66	-205,854	-15,267	-14,812	-14,962	-15,047	-15,025	-14,880	-14,580	35,489
Accumulated NCF to Plant	k¥	¥11.66	-205,854	-152,037	-166,849	-181,811	-196,858	-211,883	-226,763	-241,343	-205,854
Net Present Value of NCF Disc. @	k¥										
	kUS\$										
	kS\$										

AsiaPhos Limited
Cheng Qiang Yan and Shi Sun Xi Phosphate Projects

	Units	¥/t	Total/ Average	2026	2027	2028	2029	2030	2031	2032	2033
CONSOLIDATED NET CASH FLOW											
Revenue											
Mine	k¥		9,763,823	683,666	773,272	803,852	834,066	865,964	898,949	933,355	970,024
Plant	k¥		6,797,628	416,274	444,924	475,927	509,539	546,052	585,799	629,166	676,593
Total Revenue	k¥		16,561,452	1,099,940	1,218,196	1,279,779	1,343,604	1,412,015	1,484,748	1,562,521	1,646,617
Operating Costs											
Mine	k¥		4,060,395	284,009	320,165	332,493	344,666	357,516	370,793	384,633	399,381
Plant	k¥		7,021,695	429,660	457,740	488,772	522,339	558,694	598,151	641,064	687,829
Total Operating Costs	k¥		11,082,090	713,669	777,905	821,264	867,005	916,210	968,944	1,025,697	1,087,210
EBITDA											
Mine	k¥		5,703,428	399,657	453,108	471,360	489,400	508,447	528,156	548,721	570,643
Plant	k¥		-224,067	-13,386	-12,816	-12,845	-12,800	-12,642	-12,352	-11,898	-11,237
Total EBITDA	k¥		5,479,362	386,271	440,291	458,515	476,600	495,806	515,804	536,824	559,407
Less: Depreciation & Amortization	k¥		-244,036	-21,191	-20,907	-9,763	-11,364	-10,627	-7,895	-7,239	-5,480
Corporate Taxes	k¥		-1,347,579	-93,756	-107,186	-119,416	-118,814	-123,615	-128,615	-133,898	-139,852
Net Operating Profit after Taxes & D&A	k¥		3,887,747	271,325	312,198	329,336	346,422	361,563	379,294	395,687	414,075
NET CASH FLOW TO CONSOLIDATED PROJECT											
Net Operating Profit after Taxes & D&A	k¥		3,887,747	271,325	312,198	329,336	346,422	361,563	379,294	395,687	414,075
Plus: Depreciation & Amortization	k¥		244,036	21,191	20,907	9,763	11,364	10,627	7,895	7,239	5,480
Less: Capital Investment	k¥		-31,884	-	-	-	-	-	-	-	-
Changes in Working Capital	k¥		47,376	-7,885	-20,354	-8,404	-8,459	-8,942	-9,312	-9,758	237,921
Net Cash Flow to Consolidated Project	k¥		4,147,275	284,631	312,751	330,695	349,327	363,248	377,877	393,168	657,476
Accumulated NCF to Consolidated Project	k¥		4,147,275	1,362,732	1,675,484	2,006,179	2,355,506	2,718,754	3,096,631	3,489,799	4,147,275
Net Present Value of NCF Disc. @	%										
	k¥										
	kUS\$										
	kS\$										

**APPENDIX 2:
DETAILS OF RESOURCE CALCULATION, MINES 1 AND 2**

	RockCode	Level	HoleID	Tonnage	P ₂ O ₅ (%)	Thickness (m)
Cheng Qiang Yan						
MAIN BED	E1_MEAS	1750-1845	PD15-4	6,000	29.91	0.31
Subtotal				6,000	29.91	0.31
Mined in 2014				-		
Mined in 2015				-		
Mined in 2016				-		
Mined in 2017				-		
Mined Total				-		
Difference				6,000	29.91	0.31
Proven Reserves				-	29.91	0.31
Meas	E1_MEAS			6,000	29.91	0.31
MAIN BED	E1_MEAS	1850-1945	PD15-4	36,000	29.91	0.31
MAIN BED	E1_MEAS	1850-1945	PD2140-2	3,000	26.61	1.57
Subtotal				39,000	29.68	0.40
Mined in 2014				-		
Mined in 2015				-		
Mined in 2016				-		
Mined in 2017				-		
Mined Total				-		
Difference				39,000	29.68	0.40
Proven Reserves				-	29.68	0.40
Meas	E1_MEAS			39,000	29.68	0.40
MAIN BED	E1_MEAS	1950-2051	PD15-1	-	26.8	1.46
MAIN BED	E1_MEAS	1950-2051	PD15-2	5,000	19.85	0.63
MAIN BED	E1_MEAS	1950-2051	PD15-3	159,000	30.48	4.42
MAIN BED	E1_MEAS	1950-2051	PD15-4	43,000	29.91	0.31
MAIN BED	E1_MEAS	1950-2051	PD2140-2	110,000	26.61	1.57
Subtotal				317,000	28.88	2.81
Mined in 2014				24,000		
Mined in 2015				26,000		
Mined in 2016				65,000		
Mined in 2017				35,000		
Mined Total				150,000		
Difference				167,000	28.88	2.81
Proven Reserves				209,000	28.88	2.81
Meas	E1_MEAS			-	105,000	28.88
MAIN BED	E1_MEAS	2056-2135	PD15-1	12,000	26.8	1.46
MAIN BED	E1_MEAS	2056-2135	PD15-2	17,000	19.85	0.63
MAIN BED	E1_MEAS	2056-2135	PD15-3	114,000	30.48	4.42
MAIN BED	E1_MEAS	2056-2135	PD15-4	15,000	29.91	0.31
MAIN BED	E1_MEAS	2056-2135	PD2140-1	443,000	26.47	12.03
MAIN BED	E1_MEAS	2056-2135	PD2140-2	102,000	26.61	1.57
MAIN BED	E1_MEAS	2056-2135	PD3-4H	1,000	21.48	3.13
MAIN BED	E1_MEAS	2056-2135	PD4-2H	11,000	20.41	1.47
MAIN BED	E1_MEAS	2056-2135	PD4-3H	12,000	33.39	8.61
MAIN BED	E1_MEAS	2056-2135	PD4-4H	17,000	28.37	1.42
Subtotal				745,000	27.09	8.29
Mined in 2014				69,000		
Mined in 2015				44,000		
Mined in 2016				75,000		
Mined in 2017				33,000		
Mined Total				221,000		
Difference				524,000	27.09	8.29
Proven Reserves				207,000	27.09	8.29
Meas	E1_MEAS			255,000	27.09	8.29
MAIN BED	E1_MEAS	2140-2235	PD2140-1	989,000	26.47	12.03
MAIN BED	E1_MEAS	2140-2235	PD2140-2	77,000	26.61	1.57
MAIN BED	E1_MEAS	2140-2235	PD3-1H	83,000	26.41	7.11
MAIN BED	E1_MEAS	2140-2235	PD3-2H	26,000	31.35	2.56
MAIN BED	E1_MEAS	2140-2235	PD3-3H	31,000	32.76	3.61
MAIN BED	E1_MEAS	2140-2235	PD3-4H	117,000	21.48	3.13
MAIN BED	E1_MEAS	2140-2235	PD4-2H	25,000	20.41	1.47
MAIN BED	E1_MEAS	2140-2235	PD4-3H	178,000	33.39	8.61
MAIN BED	E1_MEAS	2140-2235	PD4-4H	38,000	28.37	1.42
MAIN BED	E1_MEAS	2140-2235	3OP1	5,000	30.99	4.59
MAIN BED	E1_MEAS	2140-2235	3OP2	49,000	31.24	5.46
MAIN BED	E1_MEAS	2140-2235	3OP3	71,000	29.9	4.95
MAIN BED	E1_MEAS	2140-2235	8OP1	3,000	34.38	4.52
Subtotal				1,691,000	27.31	9.13
Mined in 2014				91,000		
Mined in 2015				92,000		
Mined in 2016				50,000		
Mined in 2017				26,000		

	RockCode	Level	HoleID	Tonnage	P ₂ O ₅ (%)	Thickness (m)
Mined Total				259,000		
Difference				1,432,000	27.31	9.13
Proven Reserves				173,000	27.31	9.13
Meas	E1_MEAS			1,208,000	27.31	9.13
UPPER BED	E1_MEAS		BT05	780,000	26.07	4.04
UPPER BED	E1_MEAS		BT06	564,000	34.33	2.60
UPPER BED	E1_MEAS		PD2900	652,000	22.14	2.85
UPPER BED	E1_MEAS		TC07	1,050,000	28.83	4.30
UPPER BED	E1_MEAS		TC08	1,272,000	22.21	6.13
UPPER BED	E1_MEAS		TC127	444,000	32	6.06
UPPER BED	E1_MEAS		TC2	859,000	17.16	10.93
Meas	E1_MEAS			5,621,000	25.19	5.49
MAIN BED	M1_MEAS	gt2240	PD2140-1	342,000	26.47	12.03
MAIN BED	M1_MEAS	gt2240	PD2140-2	16,000	26.61	1.57
MAIN BED	M1_MEAS	gt2240	PD3-0H	8,000	20.89	0.8
MAIN BED	M1_MEAS	gt2240	PD3-1H	19,000	26.41	7.11
MAIN BED	M1_MEAS	gt2240	PD3-2H	2,000	31.35	2.56
MAIN BED	M1_MEAS	gt2240	PD3-3H	6,000	32.76	3.61
MAIN BED	M1_MEAS	gt2240	PD3-4H	68,000	21.48	3.13
MAIN BED	M1_MEAS	gt2240	TC101	259,000	32.2	13.84
MAIN BED	M1_MEAS	gt2240	TC103	165,000	25.38	5.04
MAIN BED	M1_MEAS	gt2240	TC104	161,000	33.03	5.76
MAIN BED	M1_MEAS	gt2240	TC105	148,000	18.51	4.85
MAIN BED	M1_MEAS	gt2240	TC106	114,000	33.32	4.35
MAIN BED	M1_MEAS	gt2240	3OP1	28,000	30.99	4.59
MAIN BED	M1_MEAS	gt2240	3OP2	1,000	31.24	5.46
MAIN BED	M1_MEAS	gt2240	5Y1	110,000	28.84	3.93
MAIN BED	M1_MEAS	gt2240	5Y2	341,000	28.83	3.94
MAIN BED	M1_MEAS	gt2240	5Y3	476,000	26.87	4.02
MAIN BED	M1_MEAS	gt2240	5Y4	366,000	26.77	3.86
MAIN BED	M1_MEAS	gt2240	8OP1	165,000	34.38	4.52
MAIN BED	M1_MEAS	gt2240	8Y2	40,000	34.09	1.04
MAIN BED	M1_MEAS	gt2240	8Y3	67,000	29.99	0.67
Subtotal				2,903,000	28.18	5.91
Mined in 2014				15,000		
Mined in 2015				20,000		
Mined in 2016				31,000		
Mined in 2017				15,000		
Mined Total				81,000		
Difference				2,823,000	28.18	5.91
Proven Reserves				100,000	28.18	5.91
Meas	M1_MEAS			2,693,000	28.18	5.91
Mined Total				711,000		
Difference				2,168,000	27.43	8.26
Proven Reserves	M1_MEAS			688,000	27.85	6.49
Meas	E1_MEAS			7,024,000	25.60	6.23

	Rockcode	Level	HoleID	Tonnage	P ₂ O ₅ (%)	Thickness (m)
Shi Sun Xi						
	M2_MEAS	gt1945	L1950	159,000	28.6	7.6
	M2_MEAS	gt1945	L2050	496,000	29.5	4
	M2_MEAS	gt1945	TC124	1,000	27.01	7.08
	M2_MEAS	gt1945	TC125	69,000	17.77	1.24
	M2_MEAS	gt1945	TC126	169,000	31.65	1.08
	M2_MEAS	gt1945	ZK701	73,000	32.25	5.77
	M2_MEAS	gt1945	ZK902	462,000	31.94	4.94
Subtotal Meas				1,430,000	30.02	4.32
	M2_IND	gt1945	L2050	646,000	29.5	4
	M2_IND	gt1945	TC126	489,000	31.65	1.08
	M2_IND	gt1945	ZK701	588,000	32.25	5.77
	M2_IND	gt1945	ZK703	145,000	28.26	7.96
	M2_IND	gt1945	ZK902	1,123,000	31.94	4.94
Subtotal Ind				2,990,000	31.25	4.42
Subtotal M+I				4,420,000	30.85	4.38
Mined in 2014				14,000		
Mined in 2015				47,000		
Mined in 2016				38,000		
Mined in 2017				19,000		
Mined Total				117,000		
Remaining Meas				1,392,000		
Remaining Ind				2,910,000		
Remaining M+I				4,302,000	30.85	4.38
Total Reserves				166,000	30.85	4.38
Proven Reserves				54,000	30.85	4.38
Probable Reserves				112,000	30.85	4.38
MP Resources Meas				1,322,000	30.02	4.32
MP Resources Ind				2,765,000	31.25	4.42
	M2_INF	gt1945	TC126	163,000	31.65	1.08
	M2_INF	gt1945	ZK902	380,000	31.94	4.94
MP Resource Inf				543,000	31.85	3.78
Ex Resource Ind				-	-	\$ -
	E2_INF	gt1945	TC126	195,000	31.65	1.08
Ex Resource Inf				195,000	31.65	1.08
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	M2_MEAS	lt1775	ZK1001	5,000	30.84	9.02
	M2_MEAS	lt1775	ZK705	78,000	19.76	1.37
	M2_MEAS	lt1775	ZK903	876,000	26.58	6.65
Subtotal Meas				959,000	26.05	6.23
	M2_IND	lt1775	ZK705	165,000	19.76	1.37
	M2_IND	lt1775	ZK903	2,443,000	26.58	6.65
Subtotal Ind				2,608,000	26.15	6.32
Subtotal M+I				3,567,000	26.12	6.29
Mined in 2014				6,000		
Mined in 2015				38,000		
Mined in 2016				47,000		
Mined in 2017				63,000		
Mined Total				154,000		
Remaining Meas				918,000		
Remaining Ind				2,496,000		
Remaining M+I				3,413,000	26.12	6.29
Total Reserves				576,000	26.12	6.29
Proven Reserves				155,000	26.12	6.29
Probable Reserves				421,000	26.12	6.29
MP Resources Meas				716,000	26.05	6.23
MP Resources Ind				1,948,000	26.15	6.32
	M2_INF	lt1775	ZK903	473,000	26.58	6.65
MP Resource Inf				473,000	26.58	6.65
	E2_MEAS	lt1775	ZK705	32,000	19.76	1.37
Ex Resource Meas				32,000	19.76	1.37
	E2_IND	lt1775	ZK705	492,000	19.76	1.37

	Rockcode	Level	HoleID	Tonnage	P ₂ O ₅ (%)	Thickness (m)
	E2_IND	lt1775	ZK903	20,000	26.58	6.65
Ex Resource Ind				513,000	20.03	1.58
	E2_INF	lt1775	ZK705	1,052,000	19.76	1.37
	E2_INF	lt1775	ZK903	1,506,000	26.58	6.65
Ex Resource Inf				2,558,000	23.78	4.48
	M2_MEAS	1775-1810	ZK1001	374,000	30.84	9.02
	M2_MEAS	1775-1810	ZK903	631,000	26.58	6.65
Subtotal Meas				1,005,000	28.16	7.53
	M2_IND	1775-1810	ZK903	49,000	26.58	6.65
Subtotal Ind				49,000	26.58	6.65
Subtotal M+I				1,054,000	28.09	7.49
Mined in 2014				-		
Mined in 2015				-		
Mined in 2016				-		
Mined in 2017				-		
Mined Total				-		
Remaining Meas				1,005,000		
Remaining Ind				49,000		
Remaining M+I				1,054,000	28.09	7.49
Total Reserves				-	28.09	7.49
Proven Reserves				-	28.09	7.49
Probable Reserves				-	28.09	7.49
MP Resources Meas				1,005,000	28.16	7.53
MP Resources Ind				49,000	26.58	6.65
Ex Resource Ind				-	-	\$ -
Ex Resource Inf				-	-	\$ -
	M2_MEAS	1815-1945	L1950	503,000	28.6	7.6
	M2_MEAS	1815-1945	ZK1001	1,906,000	30.84	9.02
	M2_MEAS	1815-1945	ZK902	600,000	31.94	4.94
	M2_MEAS	1815-1945	ZK903	469,000	26.58	6.65
Subtotal Meas				3,478,000	30.13	7.79
	M2_IND	1815-1945	L1950	21,000	28.6	7.6
	M2_IND	1815-1945	ZK903	42,000	26.58	6.65
Subtotal Ind				63,000	27.26	6.97
Subtotal M+I				3,540,000	30.08	7.78
Mined in 2014				13,000		
Mined in 2015				15,000		
Mined in 2016				12,000		
Mined in 2017				-		
Mined Total				39,000		
Remaining Meas				3,439,000		
Remaining Ind				62,000		
Remaining M+I				3,501,000	30.08	7.78
Total Reserves				-	30.08	7.78
Proven Reserves				-	30.08	7.78
Probable Reserves				-	30.08	7.78
MP Resources Meas				3,439,000	30.13	7.79
MP Resources Ind				62,000	27.26	6.97
Ex Resource Ind				-	-	\$ -
Ex Resource Inf				-	-	\$ -
Ex Resource Inf (Fault)	E2_INF		TC126	268,000	31.65	1.08
Mined Total				310,000		
Remaining M+I				12,270,000	29.08	6.15
Total Reserves				742,000	27.18	5.87
Proven Reserves				209,000	27.34	5.80
Probable Reserves				534,000	27.11	5.89
MP Resources Meas				6,482,000	29.35	6.87

Rockcode	Level	HoleID	Tonnage	P ₂ O ₅ (%)	Thickness (m)
MP Resources Ind			4,823,000	29.09	5.24
MP Resources M+I			11,305,000	29.24	6.17
MP Resource Inf			1,016,000	29.40	5.12
Ex Resource Meas			32,000	19.76	1.37
Ex Resource Ind			513,000	20.03	1.58
Ex Resource M+I			545,000	20.02	1.57
Ex Resource Inf			3,021,000	24.98	3.96

Dilution 30%

RESOURCE & RESERVE TOTALS

	Tonnes	P ₂ O ₅ (%)	Thickness (m)
MEASURED			
Mine	9,175,000	29.01	6.59
Exploration	<u>7,056,000</u>	<u>25.57</u>	<u>6.20</u>
Total	16,231,000	27.51	6.42
INDICATED			
Mine	4,823,000	29.09	5.24
Exploration	<u>513,000</u>	<u>20.03</u>	<u>1.58</u>
Total	5,336,000	28.22	4.89
MEASURED + INDICATED			
Mine	13,998,000	29.04	6.12
Exploration	<u>7,569,000</u>	<u>25.19</u>	<u>5.89</u>
Total	21,567,000	27.69	6.04
INFERRED			
Mine	1,016,000	29.40	5.12
Exploration	<u>3,021,000</u>	<u>24.98</u>	<u>3.96</u>
Total	4,037,000	26.09	4.25
PROVEN RESERVES			
Mine	897,000	27.73	6.33
Exploration			
Total	897,000	27.73	6.33
PROBABLE RESERVES			
Mine	534,000	27.11	5.89
Exploration			
Total	534,000	27.11	5.89
PROVEN AND PROBABLE RESERVES			
Mine	1,431,000	27.50	6.17
Exploration			
Total	1,431,000	27.50	6.17

**APPENDIX 3:
DETAILS OF RESOURCE CALCULATION, MINE 2 ONLY**

	RockCode	Level	HoleID	Tonnage	P ₂ O ₅ (%)	Thickness (m)
Shi Sun Xi						
	M2_MEAS	gt1945	L1950	159,000	28.6	7.6
	M2_MEAS	gt1945	L2050	496,000	29.5	4
	M2_MEAS	gt1945	TC124	1,000	27.01	7.08
	M2_MEAS	gt1945	TC125	69,000	17.77	1.24
	M2_MEAS	gt1945	TC126	169,000	31.65	1.08
	M2_MEAS	gt1945	ZK701	73,000	32.25	5.77
	M2_MEAS	gt1945	ZK902	462,000	31.94	4.94
Subtotal Meas				1,430,000	30.02	4.32
	M2_IND	gt1945	L2050	646,000	29.5	4
	M2_IND	gt1945	TC126	489,000	31.65	1.08
	M2_IND	gt1945	ZK701	588,000	32.25	5.77
	M2_IND	gt1945	ZK703	145,000	28.26	7.96
	M2_IND	gt1945	ZK902	1,123,000	31.94	4.94
Subtotal Ind				2,990,000	31.25	4.42
Subtotal M+I				4,420,000	30.85	4.38
Mined in 2014				14,000		
Mined in 2015				47,000		
Mined in 2016				38,000		
Mined in 2017				19,000		
Mined Total				117,000		
Remaining Meas				1,392,000		
Remaining Ind				2,910,000		
Remaining M+I				4,302,000	30.85	4.38
Total Reserves				166,000	30.85	4.38
Proven Reserves				54,000	30.85	4.38
Probable Reserves				112,000	30.85	4.38
MP Resources Meas				1,322,000	30.02	4.32
MP Resources Ind				2,765,000	31.25	4.42
	M2_INF	gt1945	TC126	163,000	31.65	1.08
	M2_INF	gt1945	ZK902	380,000	31.94	4.94
MP Resource Inf				543,000	31.85	3.78
Ex Resource Ind				-	-	\$ -
	E2_INF	gt1945	TC126	195,000	31.65	1.08
Ex Resource Inf				195,000	31.65	1.08
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	M2_MEAS	lt1775	ZK1001	5,000	30.84	9.02
	M2_MEAS	lt1775	ZK705	78,000	19.76	1.37
	M2_MEAS	lt1775	ZK903	876,000	26.58	6.65
Subtotal Meas				959,000	26.05	6.23
	M2_IND	lt1775	ZK705	165,000	19.76	1.37
	M2_IND	lt1775	ZK903	2,443,000	26.58	6.65
Subtotal Ind				2,608,000	26.15	6.32
Subtotal M+I				3,567,000	26.12	6.29
Mined in 2014				6,000		
Mined in 2015				38,000		
Mined in 2016				47,000		
Mined in 2017				63,000		
Mined Total				154,000		
Remaining Meas				918,000		
Remaining Ind				2,496,000		
Remaining M+I				3,413,000	26.12	6.29
Total Reserves				576,000	26.12	6.29
Proven Reserves				155,000	26.12	6.29
Probable Reserves				421,000	26.12	6.29
MP Resources Meas				716,000	26.05	6.23
MP Resources Ind				1,948,000	26.15	6.32
	M2_INF	lt1775	ZK903	473,000	26.58	6.65
MP Resource Inf				473,000	26.58	6.65
Ex Resource Meas				32,000	19.76	1.37
	E2_MEAS	lt1775	ZK705	32,000	19.76	1.37
	E2_IND	lt1775	ZK705	492,000	19.76	1.37
	E2_IND	lt1775	ZK903	20,000	26.58	6.65
Ex Resource Ind				513,000	20.03	1.58
	E2_INF	lt1775	ZK705	1,052,000	19.76	1.37
	E2_INF	lt1775	ZK903	1,506,000	26.58	6.65
Ex Resource Inf				2,558,000	23.78	4.48
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	M2_MEAS	1775-1810	ZK1001	374,000	30.84	9.02
	M2_MEAS	1775-1810	ZK903	631,000	26.58	6.65

	RockCode	Level	HoleID	Tonnage	P ₂ O ₅ (%)	Thickness (m)
Subtotal Meas				1,005,000	28.16	7.53
	M2_IND	1775-1810	ZK903	49,000	26.58	6.65
Subtotal Ind				49,000	26.58	6.65
Subtotal M+I				1,054,000	28.09	7.49
Mined in 2014				-		
Mined in 2015				-		
Mined in 2016				-		
Mined in 2017				-		
Mined Total				-		
Remaining Meas				1,005,000		
Remaining Ind				49,000		
Remaining M+I				1,054,000	28.09	7.49
Total Reserves				-	28.09	7.49
Proven Reserves				-	28.09	7.49
Probable Reserves				-	28.09	7.49
MP Resources Meas				1,005,000	28.16	7.53
MP Resources Ind				49,000	26.58	6.65
Ex Resource Ind				-	-	\$ -
Ex Resource Inf				-	-	\$ -
	M2_MEAS	1815-1945	L1950	503,000	28.6	7.6
	M2_MEAS	1815-1945	ZK1001	1,906,000	30.84	9.02
	M2_MEAS	1815-1945	ZK902	600,000	31.94	4.94
	M2_MEAS	1815-1945	ZK903	469,000	26.58	6.65
Subtotal Meas				3,478,000	30.13	7.79
	M2_IND	1815-1945	L1950	21,000	28.6	7.6
	M2_IND	1815-1945	ZK903	42,000	26.58	6.65
Subtotal Ind				63,000	27.26	6.97
Subtotal M+I				3,540,000	30.08	7.78
Mined in 2014				13,000		
Mined in 2015				15,000		
Mined in 2016				12,000		
Mined in 2017				-		
Mined Total				39,000		
Remaining Meas				3,439,000		
Remaining Ind				62,000		
Remaining M+I				3,501,000	30.08	7.78
Total Reserves				-	30.08	7.78
Proven Reserves				-	30.08	7.78
Probable Reserves				-	30.08	7.78
MP Resources Meas				3,439,000	30.13	7.79
MP Resources Ind				62,000	27.26	6.97
Ex Resource Ind				-	-	\$ -
Ex Resource Inf				-	-	\$ -
Ex Resource Inf (Fault)	E2_INF		TC126	268,000	31.65	1.08
Mined Total				310,000		
Remaining M+I				12,270,000	29.08	6.15
Total Reserves				742,000	27.18	5.87
Proven Reserves				209,000	27.34	5.80
Probable Reserves				534,000	27.11	5.89
MP Resources Meas				6,482,000	29.35	6.87
MP Resources Ind				4,823,000	29.09	5.24
MP Resources M+I				11,305,000	29.24	6.17
MP Resource Inf				1,016,000	29.40	5.12
Ex Resource Meas				32,000	19.76	1.37
Ex Resource Ind				513,000	20.03	1.58
Ex Resource M+I				545,000	20.02	1.57
Ex Resource Inf				3,021,000	24.98	3.96

Dilution 30%

RESOURCE & RESERVE TOTALS

	Tonnes	P ₂ O ₅ (%)	Thickness(m)
MEASURED			
Mine	6,482,000	29.35	6.87
Exploration	<u>32,000</u>	<u>19.68</u>	<u>1.36</u>
Total	6,514,000	29.31	6.84
INDICATED			
Mine	4,823,000	29.09	5.24
Exploration	<u>513,000</u>	<u>20.03</u>	<u>1.58</u>
Total	5,336,000	28.22	4.89
MEASURED + INDICATED			
Mine	11,305,000	29.24	6.17
Exploration	<u>545,000</u>	<u>20.01</u>	<u>1.57</u>
Total	11,850,000	28.82	5.96
INFERRED			
Mine	1,016,000	29.40	5.12
Exploration	<u>3,021,000</u>	<u>24.98</u>	<u>3.96</u>
Total	4,037,000	26.09	4.25
PROVEN RESERVES			
Mine	209,000	27.28	27.17
Exploration			
Total	209,000	27.28	27.17
PROBABLE RESERVES			
Mine	534,000	27.11	5.89
Exploration			
Total	534,000	27.11	5.89
PROVEN AND PROBABLE RESERVES			
Mine	743,000	27.16	11.88
Exploration			
Total	743,000	27.16	11.88